American Aviation

OCTOBER 16, 1950 25c

THE AIR INDUSTRY'S PIONEER INDEPENDENT MAGAZINE

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Realism in Air Freight

(Editors' Note: "The Airplane's Potential in the Freight Market," discussed by Wayne W. Parrish at the recent California Air Freight Clinic at Berkeley, brought heavy mail response with a number of requests for publication of the speech. Because of the widespread interest in the subject, the editorial space this issue is given over to the speech delivered before the clinic.)

by W. W. P.

The ability of the airplane to carry goods as well as mail and passengers has been an intriguing challenge in this aviation business as far back as I can remember. It has been a very perplexing and sometimes frustrating challenge. One of my very first contacts with aviation came as a newspaper reporter in New York many years ago, somewhere about 1930, when I accompanied a fellow reporter to interview a man who was just about to launch a coast-to-coast air express service.

I was enthralled as I listened to the promoter describe a fleet of airplanes (single-engined ones, they were) flying through the day and night carrying valuable goods and flowers between New York and California. My colleague was a much wiser man who, even twenty years ago, had learned to be a little cautious about ambitious aviation plans. I couldn't understand at the time why he wrote only a couple of paragraphs about this wonderful new air service. But the airline promotion folded as most of them did in those days. Flowers somehow just didn't quite pay for an airline operation in 1930.

In reading over all of the predictions and studies and prophecies about air cargo in the past five years I came to the rather inescapable conclusion that the margin of error in projecting the future volume of air cargo has been substantially greater than for any other phase of aviation except, possibly, private flying. Perhaps it isn't so much a margin of error as it is a margin of optimism.

The future of air cargo is surrounded by something akin to mysticism. There is an absolute confidence and a firm conviction amounting almost to religious fervor that some day air cargo is going to be something very big. Ask any air cargo convert about the business potential and his eyes light up like Broadway at night and an eerie blue mist gathers around his head; and he will assure you positively that air cargo is going to equal or exceed the passenger business in anywhere from five

(Turn to Page 6)

United's Executive Vice President

Otis E. Kline, after a year of service as executive assistant to W. A. Patterson, president of United Air Lines, has been named executive vice president and a director of the company. He began in aviation as a flight mechanic for a pioneer freight line in 1928, then continued with Stout Airlines, UAL predecessor, as a pilot. He has moved up rapidly in the company since giving up a flight captain's post for administrative assignments.

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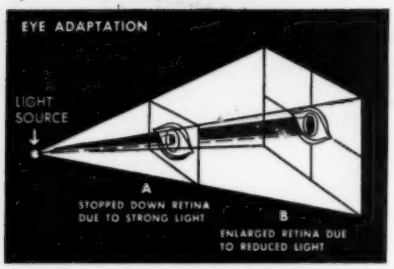
OTHER AMERICAN AVIATION PUBLICATIONS

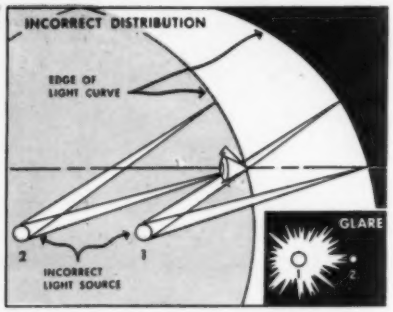
AMERICAN AVIATION DAILY — OFFICIAL AIRLINE GUIDE — AMERICAN AVIATION DIRECTORY

Basic Principles of High Intensity Runway Lighting

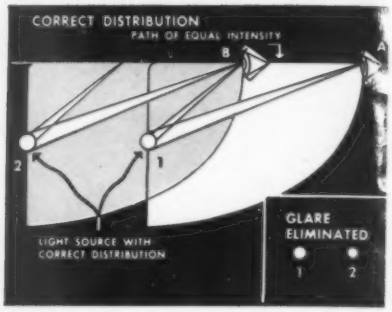
GLARE — WHAT CAUSES IT . . . WHY WE DON'T HAVE IT



1. The iris of the eye, like a camera, has a diaphragm which regulates the amount of light reaching the retina. In the diagram, when the eye is at A, the excess light stops down the iris so that the eye is insensitive to the minimum it would receive at B. Too much light increases the apparent *size* of the light, causing glare.

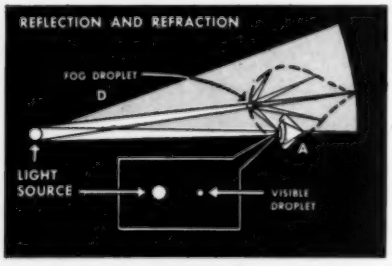


2. Nos. 1 and 2 represent two runway lights; circles represent the overlapping, spherical distribution from the lights. With the eye at the point shown, the light from No. 1 is so much brighter than that from No. 2 that No. 1 produces glare, which partly or completely obscures light No. 2, as shown in the small inset illustration.

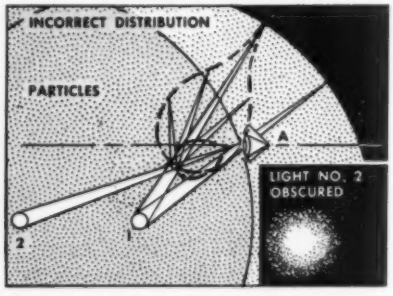


3. With two *controlled* lights, the eye at A receives just enough light to make No. 1 visible. As it moves to B, the optical system of the light cuts down beam strength; light No. 2 is clearly visible, with the same apparent brightness as No. 1. The same principle applies to a whole row of lights; all appear of the same apparent brightness, without glare.

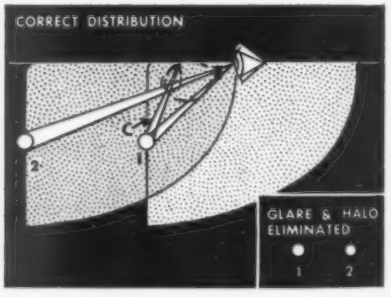
HALO — HOW IT HAPPENS . . . HOW WE PREVENT IT



4. Halo about a light source is caused by the reflections, from suspended particles—snow, fog, etc., of angular rays that would not be visible in clear atmosphere. Here the angular reflected and refracted light from a fog droplet such as D makes the light appear much larger than it actually is. This appearance is known as halo.



5. Here the effect of halo is seen on the runway. The eye at A sees not only light No. 1, but also the large "blob" of rays reflected and refracted from fog particles. Thus light No. 1 appears so large that it completely obscures No. 2. Glare, caused by the stronger beams of the nearer, uncontrolled light makes the problem even more acute.



6. Halo is prevented by optical control of the light beam. Both lights reach the eye at exactly the same strength, so that as the eye moves along the runway, these and successive lights remain at the same strength. Angular rays such as C are not strong enough to reflect from fog particles in the atmosphere and therefore halo is eliminated.

L-M controls the light to prevent glare and halo

Glare and halo are problems in any signal lighting installation. But they are far more serious in runway lighting, where it is essential that the pilot see more than one pair of lights at a time.

With lights of uncontrolled, spherical distribution, the nearness of the eye to the nearest light inevitably causes glare. Manufacturers have therefore been limited in the strength of the light they can use. Similarly halo is caused by these uncontrolled beams. Both glare and halo screen, or conceal, all but the lights nearest the observer.

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American Aviation

THE AIR INDUSTRY'S PIONEER INDEPENDENT MAGAZINE

NEWS SECTION

Volume 14 Number 13 October 16, 1950

a LOOK at the WEEK

Reconstruction Finance Corporation will establish procedures shortly under which it will make direct defense loans to industry. RFC is authorized to use $2 billion for such loans. However, great majority of government-guaranteed loans for plant expansion, etc., will come from banks and private financing institutions.

•

Allocation of some critical materials to essential users may be ordered by National Production Authority in next 60 to 90 days. Aluminum and copper are particularly scarce.

•

Senate Armed Service Committee's "watchdog" subcommittee on defense doesn't have any plans to investigate aircraft production. Of interest to aviation, however, is group's intention to study manpower needs, look into steel production, and investigate Alaskan defense picture.

•

One of biggest problems involved in reaching agreement in Congress on excess profits tax legislation will be what years will be used as base for figuring normal profits. One proposal has been to use 1947-48-49, which would hurt airlines and manufacturers because it was low profit period.

•

Air Force engine overhaul work already turned over to west coast civilian overhaul shops has caused some curtailment of airline overhaul business.

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They haven't been released yet, but new travel regulations to be sent by Pentagon to all military transportation officers will be very favorable to commercial air transport. Although rails are supposed to have preference in military travel, new rules give this only a perfunctory nod, and practically place air, rail and bus on equal basis.

•

Airlines will ask Congress next month to pass legislation relieving them of liability for deporting subversives brought to U.S. under valid passports. Expected to pass before year-end is a bill establishing war risk insurance for protection of civil planes and crews flying into war zones.

•

If Congress grants authority for militarization of CAA in all-out emergency, chances are that everyone in CAA wouldn't be put in uniform. Plans now being drawn don't include militarization of CAA divisions having control and supervision over airlines.

AFF Buys Canadian Liaison Planes

Four Canadian-built de Havilland Beavers have been ordered by Army Field Forces for testing in connection with its 1951 procurement of four-place fixed-wing liaison-type aircraft.

In making the purchase, AFF made use of emergency provisions in a 17-year-old law which heretofore had blocked purchase of special-use aircraft from foreign manufacturers. The law, known as the "Buy America Act," has been on the books since Mar. 3, 1933. It provides that government departments and agencies shall purchase for public use only those products manufactured in America from American raw materials, except under emergency conditions. Only last fall military procurement officials reportedly had used this law to prevent demonstration of the Beaver at Wright-Patterson Air Force Base, despite high interest of some Air Force officers in using the plane in Alaska.

Several U. S. manufacturers, notably Northrop and Piper, are said to be interested in producing the Beaver under license if the AFF follow up the trial order with a sizeable production order. U. S. planes being surveyed by AFF for same general use as the Beaver include Cessna 190, Beech Twin-Bonanza and Helioplane.

Mobilization Plans Speeded

Preparation of the role that all phases of civil aviation will play in an emergency is being undertaken by a special National Security Resources Board committee, which is to complete its plans by Jan. 15, 1951, it was learned last week.

For the first time, mobilization planning for all segments of the industry is being handled by one group. As predicted, CAB Chairman D. W. Rentzel emerges as the key figure, heading the NSRB task groups. These groups and sub-committees in turn are headed by industry officials.

Among the important questions that will be decided by Rentzel's committee are what provisions will be made to assure that airlines secure necessary equipment and spare parts, what type of airline priorities system will be established in event of war, what the air service pattern will be, what will happen to private flying, airports, airways, etc.

The organizational set-up is as follows:

Chairman

D. W. Rentzel is chairman, with Charles O. Cary, executive secretary of the Air Coordinating Committee, as general secretary.

Air Transport Task Group

Milton W. Arnold, vice president-operations and engineering, Air Transport Association, heads the group. J. M. Harper, ACC, is secretary. Under the task group are the following five sub-committees:

Military Modification: W. C. Mentzer, general manager-engineering, United Air Lines. Secretary is R. R. Reining, ACC.

Equipment and Replacement Parts Requirements: L. J. McLeod, general purchasing agent, Eastern Air Lines. Secretary not yet named.

Manpower: J. L. O'Brien, Airline Personnel Relations Conference. Secretary not named.

War Air Service Pattern: John Clemson, TWA general traffic manager. David Bluestone, CAB, is secretary.

Air Priorities: Ray W. Ireland, vice president-traffic, United Air Lines. Secretary not named.

Training-Overhaul-Maintenance Task Group

William J. Graham, of Pittsburgh-Butler Airport, Butler, Pa., heads this group. Secretary has not been named. Following are the five sub-committees:

Training: Beverly Howard, president of Hawthorne Aero Supply, Charleston, S. C. Secretary is John Guilmartin, CAA.

Overhaul and Maintenance: Maxwell W. Balfour, Spartan School of Aeronautics, Tulsa, Okla. Secretary, George Wertz, CAA.

Private Flying: George Haddaway, editor, *Southern Flight*. Secretary, Wiley Wright, CAA.

Airports: A. B. Curry, director of Dade County Port Authority, Miami. Secretary, R. N. Cook, CAA.

Airways: Gordon O'Reilly, president of Aeronautical Radio Inc. Secretary, L. W. Burton, ACC.

MANUFACTURERS

Wright to Build Sapphire: Agreement has been signed under which Wright Aeronautical Corp. will build the British Armstrong-Siddeley Sapphire jet engine in this country. The agreement covers not only the Sapphire (7,200 lbs. thrust) but also rights to the Python, Mamba and Double Mamba turbo-prop engines. Price for the license was not disclosed, but Armstrong-Siddeley officials said it ran "into millions." Wright has large orders for R-3350 piston engines, but has no production jet engine.

$35 Million to Ford: Air Materiel Command contract list discloses that first contract to Ford Motor Co. to build Pratt & Whitney R-4360 Wasp Major piston engines and parts under license from Pratt & Whitney Aircraft Division of United Aircraft Corp. is for $35,099,690.

DO Numbers: Defense Order Ratings established under the National Production Authority's priorities system, designed to give defense production the right-of-way, will carry the following identifying digits: 01, aircraft; 02, guided missiles; 03, ships; 04, tank-automotive; 05, weapons; 06, ammunition; 07, electronic and communication equipment; 08, fuels and lubricants; 09, clothing and equipage; 10, transportation equipment; 11, building supplies and equipment for overseas (troop) construction; 21, miscellaneous; 22, Department of Defense construction (contract); 98, production equipment for certain contractors. Order of the digits does not indicate any priority. All DO's are on an equal basis.

Cessna Production: Cessna Aircraft Co., reports that it is producing personal aircraft at a rate of 110 per month.

Century Contract: Century Engineers, Burbank, Calif., has received contract from Lockheed Aircraft Corp. for complete design of wing tip fuel tank nacelles for P2V anti-submarine patrol bomber.

People: **D. W. Holmes,** who has been general sales manager of Parker Appliance Co., has been elected vice president-sales of the company.

PLANES & EQUIPMENT

1951 Navion: The Super 260 Navion is now coming off the San Diego assembly line as a 1951 model incorporating further refinements including improved cabin cooling, more luxurious interior styling, exterior baggage door and new all-metal Hartzell propeller, Ryan Aeronautical Co. has announced.

F-90 Work Stopped: All work on Lockheed's F-90 jet penetration fighter has been stopped as a result of Air Force decision to re-evaluate requirements for all types of fighters. The two experimental planes remain at Muroc.

Flight Test Control System: A combination television-electronics control system aimed at replacing a pilot on dangerous flight test assignments is being developed by Lear Inc. and Philco Corp., in cooperation with Air Materiel Command's equipment laboratory and electronics subdivision. Lear is developing the remote control system to enable a pilot and flight engineer on the ground to control the plane's flight, while Philco is working out television refinements to make it useable under severe flight test conditions. Flight tests on two Douglas F-24 Dauntless aircraft have indicated that the program is feasible.

Superchargers for PAA: Model S60-5A superchargers are being delivered by Stratos Division of Fairchild Engine and Airplane Corp. to Pan American World Airways for installation in PAA's Lockheed L-049 Constellations.

MILITARY

Top AF Assignments: President Truman has appointed Lt. Gen. **Nathan F. Twining** as Vice Chief of Staff of the Air Force with the rank of full general. Lt. Gen. **Lauris Norstad,** who has been acting Vice Chief of Staff, has been appointed to the important command of United States Air Force in Europe. Lt. Gen. **Idwal H. Edwards** was named Deputy Chief of Staff for Operations, in which capacity he has been acting since May.

Trainer Evaluation: Military flight trainer evaluation tests, originally scheduled to take six months, have been condensed to one week at Randolph AFB, Texas, and the report of the Air Force-Navy-Canadian-British evaluation team is en route to AF headquarters. The five planes entered in the tests were Fairchild T-31, Beech T-34, TEMCO T-35, British Boulton Paul Balliol and Canadian de Havilland Chipmunk. Results will be compared with operational figures for the North American T-6, now the basic military flight trainer.

AF Safety Program: To insure an effective Air Force flying safety program by technical inspection of all types of AF aircraft, a new AF office has been established at Norton AFB. Maj. Gen. **Victor E. Bertrandias,** who will serve as deputy to Lt. Gen. **Howard A. Craig,** AF Inspector General, will head the Deputy Inspector General for Technical Inspection and Flight Safety Research Office. The new office will include two directorates: Technical Inspection, headed by Brig. Gen. **Thomas O. Hardin,** and Flight Safety Research, headed by Brig. Gen. **Oscar F. Carlson.**

Airlift Cut: A 23% cut in commercial airlift to Korea will be made in November, limiting scheduled and non-scheduled airline participation to 200 round-trips. Scheduled airlines will make 112 of the trips, non-skeds 88.

Korea Tops Berlin: The Korean airlift, on the basis of plane-miles flown, is topping the Berlin airlift, Military Air Transport Service states. MATS Pacific planes are flying 10,000 more plane-miles daily than average Berlin figure; current Pacific rate is 252,000

(*Continued opposite page* 62)

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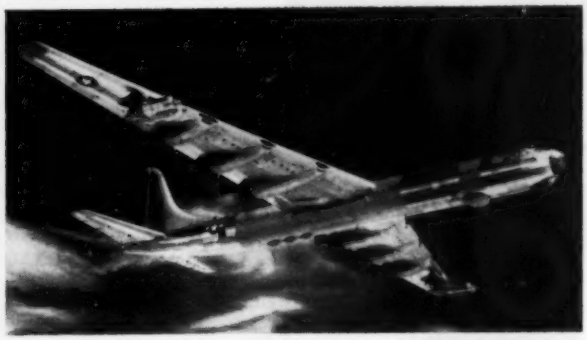
News In Pictures

Oath-Taking Ceremony—Donald W. Nyrop, left, and Delos W. Rentzel, center, being sworn in as Civil Aeronautics Administrator and chairman of the Civil Aeronautics Board, respectively, by Secretary of Commerce Charles Sawyer on October 4. Nyrop formerly was deputy CAA Administrator under Rentzel.



Seeing Eye—This is the first photo of the RB-36, reconnaissance version of the big 10-engine bomber. The RB-36 is "equipped with the most powerful cameras ever installed in an airplane."

WILLIAM M. ALLEN, president of Boeing Airplane Co., climbs into a Stratojet medium bomber at his company's Wichita plant preparatory to taking a 30-minute first flight. Boeing is building the six-jet swept-wing plane in quantity for the Air Force.

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Realism on Air Freight

(*Continued from Page* 1)

ten years depending on the length of time he has been a convert.

Ask him if he means in terms of dollar revenue or tons or ton-miles and he begins to get fidgety and looks accusingly at you as though you were a disbelieving traitor. Ask him *why* he thinks cargo will surpass the passenger business and he will assure you with his right hand raised and his left hand on a two-foot high stack of passenger fare tariffs that of course air cargo is going to be the backbone of air transportation because it has always been that way historically in other forms of transportation.

Contrary to any impression I may have given in the preceeding comments, I'm not negative about air cargo. It's going to grow in volume and importance. But it isn't going to grow automatically just because of an assumption based on a doubtful historical precedent and I wouldn't want to predict whether or when it's going to equal or exceed the passenger business or whether it will be done with combination airlines or separate ones just for cargo. If I have any contribution to make on the subject at all it is a plea for realism to replace some of the ephemeral and flimsy prognosticating that filled the air in the period right after the war.

I'd like to offer a few points on realism in air cargo projections which I think can stand exploration.

I—Full-Load Fallacy

The first is an all-too-common tendency to take the maximum performance and maximum range and maximum load available for any given type of airplane and use this as the base for projecting the future business prospects of any phase of the business, passengers or cargo.

We all remember the tremendously effective job of moving war supplies during the war by ATC and NATS and especially of the Hump operation between India and China. Then since the war came the Berlin air lift which proved beyond any shadow of doubt the very impressive load-carrying possibilities of the transport airplane. But all these were controlled operations with maximum utilization of equipment and full loads waiting on each trip.

Common carrier operations are quite a different thing. There was a time during the war when the domestic passenger airlines were reaching as high as 11 hours of utilization per day per plane, a very remarkable achievement. But there were always passengers waiting to take the seats no matter what the time of day or night. It was, in an actual sense, a controlled operation—the full load was always available.

Some of the airlines actually began planning post-war operations on this high war-time utilization and learned to their sorrow after the war that the public had other ideas. The seats available for departure at 3 a.m. remained available and empty. So as schedules were revised to fit the public desires, plane utilization dropped sharply, and in anything so economically sensitive as equipment utilization, the loss of two or three hours per day meant a great deal of revenue.

While, the maximum performance of any transport airplane under controlled operation is very impressive, the maximum utilization all too often doesn't fit into the perverse traveling and shipping habits and desires of the public and industry.

II—Freight or Express?

My second point is nomenclature and the inference in so many aviation circles that the airplane is going to make a big dent in the over-all freight market. All of us in aviation keep referring to air cargo or air freight, but isn't it really, for the most part, just express? Occasionally there is a bona fide freight shipment, to be sure, but the really big freight market seems almost untouchable by the airplane at any time in the foreseeable future except for strictly military lift.

More than once an airline man has pointed ou with great glow of satisfaction a pile of freight awaiting air shipment and it has looked very impressive until you figure out that the whole lot would fit nicely into one corner of a freight car.

Last year, 1949, all of the domestic certificated airlines including the all-cargo carriers performed about 132,000,000 ton-miles of freight. I would be the last to disparage this achievement. It was fine progress. But in the same year the railroads of the United States performed 526 billion ton-miles of freight. The ratio of air freight to rail freight in the year 1949 amounted to .00025.

My point is not to belittle the air achievement but to recall the talk right after the war that air was going to become a big factor in the freight market, when, as a matter of fact, what the air carriers have done is to dip somewhat into the express field.

III—Underpricing the Product

My third point on realism involves price. It seems to me that from the very start the airlines have underpriced their product. This probably stems from the early days when it was tough to sell the public on air travel and the lowest fare possible was desirable. At the moment I think it is safe to say that no air carrier is really making money from all-freight service and that for the most part they are merely getting back their out of pocket expenses.

In the case of airlines carrying freight in passenger planes, freight revenue is helpful and profitable in that the space and capacity are available anyway. But of course, again, this is chiefly express and a real freight market cannot be developed on the limited space available in passenger planes where mail, passengers and air express have priority on space and freight can use whatever happens to be left.

Too often the ability to get back out of pocket expenses has been considered to be a profitable triumph, but other businesses are not built and maintained on such a system.

The history of air transportation has been noteworthy for its very narrow operating profit margin. Sometimes this has been caused by government regulation, at other times by competition. But by and large air service has tended to be under-priced. The carriers haven't asked the public for enough margin.

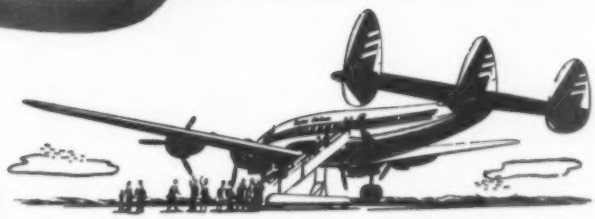
I know of one airline back east that has been carrying coach passengers for 4c a mile and its cost of carrying that traffic is 4¾c. It's the old gag of making up the unit loss through volume and I swear I think some airline is going to achieve that yet.

Air freight rates were shoved far down the scale in 1946 and 1947, probably because some operator had read a brochure issued by the sales department of an aircraft manufacturer saying that its airplane could haul cargo profitably at 7c a ton-mile and the operator believed it and tried to make it work. Those low rates did result in volume, but General Motors doesn't put a price tag on its cars of $500 under actual manufacturing cost just in order to sell more cars.

But assuming that competition was the reason for the very low rates prevailing since the war, isn't it time with a war situation at hand, to put those freight rates at a profitable level where they can do more than cover out of pocket expenses? Now is the time to put freight on a paying basis when the bulk of demand is tied in with mobilization economy.

(*Turn to Page* 8)

Another famous name in business pays tribute to the Remington *Electri-conomy* Typewriter



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Realism on Air Freight

(*Continued from Page 6*)

IV—Delusion of Cost

My point four on realism is the tendency to look only at direct operating costs when projecting future cargo operations, without taking into account the inevitable higher charges that are going to be made by airports and the investments necessary for new freight terminals, ramp space, warehouses, ground equipment, salesmen, accountants and the like. Air cargo has been living out of a tent, but sooner or later, as the family increases, it will have to move into a house with modern plumbing and utilities, and that costs more money all around.

Perhaps the greatest delusion is the airplane itself. I have heard for five years that the answer to air cargo is an economical cargo airplane. There isn't the slightest doubt in the world that a really good cargo airplane can be built that would cut operating costs under existing levels. But the present economy of air cargo is based largely on airplanes purchased from one source or another at a fraction of their original cost—a cost which the taxpayer stood as one of the multitude of costs of war.

If the military develops efficient cargo types and then these airplanes become available as surplus, the air cargo business can continue to go along on a war surplus economy. But I don't think we should kid anybody that if the air cargo economy were based on the necessity for developing new types of airplanes on the commercial market, air cargo rates would have to respond upwards accordingly.

V—The Airplane's Limitations

Point five pertains to limitations of equipment, back haul, short haul, traffic control and tariffs. Railroad trains and trailer trucks have detachable power units which can keep in use during loading and unloading. The airplane's very costly power plants are not detachable from the plane's freight car except, of course, important strides have been made in changing engines.

But essentially the plane's power plants are fixed to a fixed load capacity and all this has to be considered in operating costs. A railroad train offers the greatest flexibility to fluctuating demand but the airplane's peculiar nature as an individual fixed unit must overcome its inflexibility by speed and much greater flexibility in operation. That is why it is so impressively successful under controlled operations but by the same token it can be very costly with poor utilization.

And then there is the short haul. Since the war there have been a good many demonstrations and experiences showing the futility of trying to invade the short-haul passenger and freight market with common air carrier operations. The airplane's destiny is the long haul in which it has a great potential.

Also there is the back haul. An empty airplane is costly to operate. After the war a lot of operators were excited about markets readily available for air cargo but the business turned out to be one-way and one-way business requires high rates to compensate for the empty back haul.

Another item is simplicity of cargo tariffs. The airlines started out with a goal of simple tariffs but somehow they have managed to work up for themselves and their customers a set of complicated and involved tariffs which take expert accountants and Philadelphia lawyers to unravel. The airlines failed to take an opportunity to avoid the pitfalls of surface transportation.

Then, too, a great many predictions and projections for cargo as well as passenger traffic blithely ignored airway traffic limitations. There is a limit to the number of common carrier airplanes that can be handled in busy traffic centers, especially during instrument conditions. Even with the billion dollar federal airways program now under way, the amount of traffic especially on the eastern seaboard is going to be limited. Shippers want dependability. And dependability relies on traffic control. This problem is a long way from being solved and until it is solved, air cargo is going to have a handicap to overcome.

VI—Meeting Industry's Needs

My last point is that very little study has actually been made of the air cargo market from the shippers' point of view. Too many projections are based upon what the airplane can do at certain levels of operating costs without trying to find out how the airplane can fit into industry's needs. I think it is safe to say that as of now air freight has not yet won a permanent place in the regular routing of industrial freight traffic—with a few relatively minor exceptions, of course, and with such specialty exceptions as flowers, newspapers and magazines, sports fashions and the like.

The airlines haven't begun to tap the industrial field which must be tapped in many new ways. Just one undeveloped field is to show those corporations who pay heavy franchise taxes in certain states based on the amount of business transacted and inventories, how they can save substantial sums of money by using air. There is one large corporation I know of with an annual freight bill of $60,000,000 yet almost nothing from that company moves regularly by air.

Price competition with other forms of transport is not the only battle ground. There are many advantages to air not yet uncovered. The fact remains that during the period since the war a large volume of business has been emergency, novelty and specialized. Most basic industries look on air as useful for emergency use only.

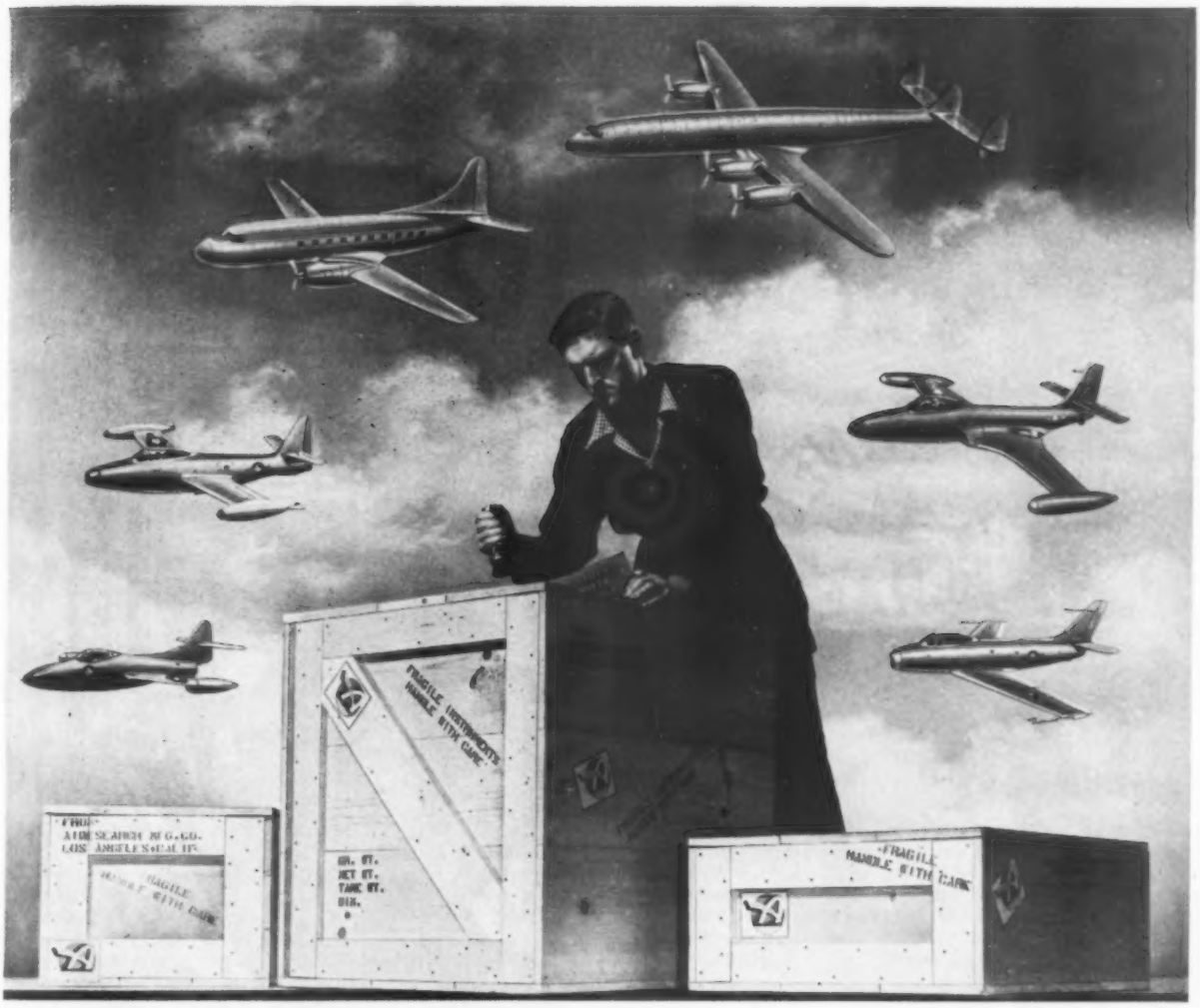
It's a matter of education, but air services must educate themselves, too, to the strange shipping habits of American industry and enterprise. I'll never forget being in the office of an airline friend of mine shortly after he had returned from military service to be faced with what appeared then to be a big boom in air freight. He had just discovered from reports on his desk that his airline was doing a rushing business carrying flowers both eastbound and westbound. I can't repeat his colorful language as he called in his cargo man to demand an explanation of how the reports could get so fouled up. How could flowers be moving *both* eastbound and westbound. What kind of a business is this, anyway . . . Well, we all have to learn things and the airlines have been learning.

I haven't mentioned perishables up until now but maybe you recall how excited everybody was about the perishable market in 1946 and 1947, and how almost nothing has been said or written about it since?

I'm sure there is a market for air in this field, but the produce distribution system is extremely complex and hazardous and a lot of study from that end will be necessary before a start can be made. Even so, it seems to me that a far better industrial market is available without trying to force a wedge into a difficult field. But most of you know more about that than I do, and California has an especially big stake in the perishable market. You can provide from here the essential backhaul needed for freight planes moving west with industrial products. Suffice it to say that in New York I found virtually no interest or concern in a perishable potential in air.

If in talking about realism I have given the impression that I'm not an enthusiast about air cargo, I assure you that I am a firm believer that the airplane is going to play an important and a permanent and a growing part in carrying goods over the country. The market is there, even at a higher and profitable rate. But it will be tapped only by hard work and studying problems of industry.

WAYNE W. PARRISH.



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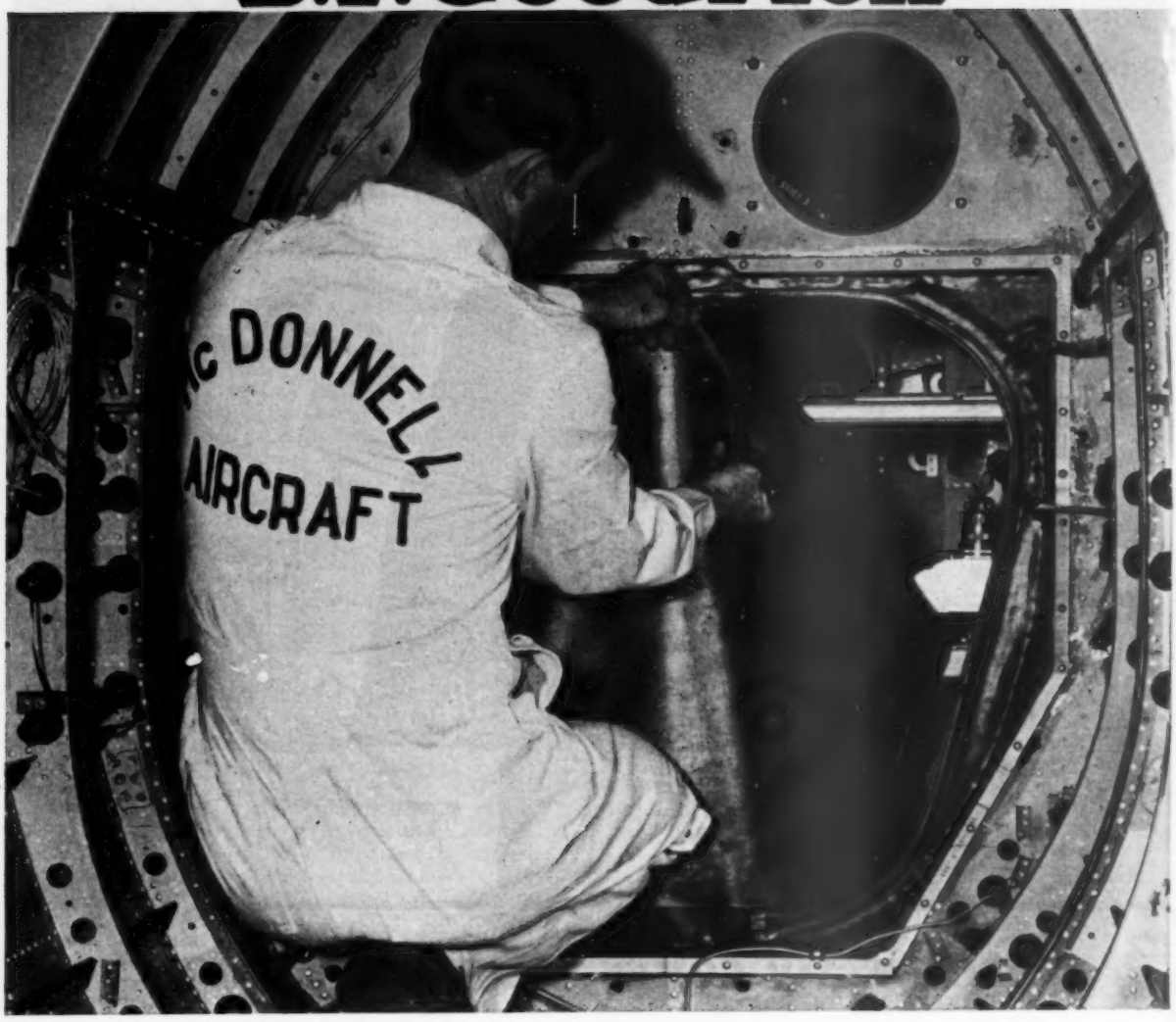

It lets men in – keeps fumes out

FUMES from a jet engine make a pilot pretty groggy if they get into the cockpit.

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BFG engineers figured one of their developments – a Pressure Sealing Zipper – might be the answer. They applied the zipper to a sheet of rubberized nylon, came up with a Fume Curtain that turned the trick.

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B. F. Goodrich Pressure Sealing Zippers are extremely flexible. They fit snugly around any shape – such as squares, kidneys and the like where clamps won't seal. They are adaptable to any kind of covering and to light or heavy requirements. They *cement* right onto either fabric or metal. They save space and weight. They resist damage. Typical applications besides fume curtains are airplane doors, air duct, inverter covers, control surface seal.

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ESTABLISHED JUNE 1, 1937 American Aviation VOLUME 14 NUMBER 11

Commercial Transport Backlog Hits Post-war Peak...

By JAMES J. HAGGERTY, JR.

IT HASN'T been getting too much attention in the aircraft industry, due to the great concentration on military production, but manufacturers of transport aircraft have now amassed their largest post-war backlog of orders for commercial transports—almost $140,000,000 worth, This compares with a backlog of $96,000,000 a year ago.

Transport builders now have firm commitments from 13 airlines for 158 new two- and four-engine airliners. In addition, two companies have military orders for commercial type transports totaling 28 units and about $35,000,000 worth of additional business. This is over and above the Air Force's large-scale Boeing C-97 Stratofreighter program.

The future also looks good for transport manufacturers, as four of the five major companies are holding discussions with airlines on possible additional purchases. As this is being written, one contract is in final negotiation stages and there are a number of potential orders in the offing. Further, the Air Force has now become interested and may order some off-the-shelf transports.

Three Companies

The $140,000,000 backlog is divided between three companies—Lockheed Aircraft Corp., Douglas Aircraft Co. and The Glenn L. Martin Co. Lockheed has the biggest backlog, over $54,000,000 for L-749 and L-1049 Constellations ordered by seven airlines. Six airlines have ordered $44,500,000 worth of DC-6 equipment from Douglas, while two airlines have placed orders totaling $40,500,000 for twin-engine Martin 4-0-4's. It is Martin's re-entry into the commercial picture after a period of dormancy which is largely responsible for the increase in backlog.

The other two big transport manufacturers, Consolidated Vultee Aircraft Corp. and Boeing Airplane Co., have no backlog at the moment.

Since World War II the five companies have delivered 609 transports with an estimated aggregate worth of $550,000,000 to 40 airlines. In addition, they delivered 11 off-the-shelf transports to the military, converted four more to military trainers and retained one as a company plane. Thus, the total number of two- and four-engine transport-type aircraft built since the war is 625.

Details

Here is a breakdown by company of the post-war transport picture:

Lockheed Aircraft Corp.:

• *Backlog.* Lockheed has commercial orders for 42 planes of the Constellation type, 14 of which are the new, elongated L-1049 model ordered by

Commercial Transport Backlog

Airline	Lockheed Constellation	Douglas DC-6*	Martin 4-0-4
Air India	2 L-749	.....	.....
American	.....	11 DC-6B	.....
Avianca	2 L-749	.....	.....
C&S	5 L-749	.....	.....
Capital	1 L-749	.....	.....
CMA	.....	3 DC-6	.....
Delta	.....	1 DC-6	.....
Eastern	14 L-1049	.....	35
KLM	1 L-749	.....	.....
Pan American	.....	18 DC-6B	.....
Swissair	.....	2 DC-6B	.....
TWA	17 L-749	.....	40
United	.....	6 DC-6B	.....
Totals	42	41*	75
Value	$54,000,000	$44,500,000	$40,500,000

* Also 2 Panagra DC-6B's in final negotiation.

Eastern Air Lines at a cost of about $25,000,000. The rest of the backlog consists of $29,000,000 worth of L-749 Constellations ordered by six airlines: 17 for Trans World Airlines, five for Chicago & Southern Air Lines, two each for Avianca and Air India, and one each for KLM Royal Dutch Airlines and Capital Airlines.

Lockheed is also building 17 Constellation type aircraft for the Navy. Eleven of these are regular L-1049 Constellations, except that they will be powered by Wright Turbo Cyclone 18 compound engines instead of the normal Cyclone 18's. Lockheed calls this model the L-1049C; the Navy has given the planes the designation R7O-1. The Navy has also ordered six other Constellations, but these will be considerably modified versions, to be used as flying early-warning intelligence centers. The latter are known as PO-2W's.

• *Deliveries.* Lockheed has delivered 182 commercial Constellations to 15 airlines. (See chart for breakdown.) The company also built 25 military Connies: 15 of the early C-69 type and 10 C-121's, which are still in Air Force service. One other Constellation, purchased from Howard Hughes, is being used by the company as a prototype for the new L-1049 model.

Douglas Aircraft Co.:

• *Backlog.* Douglas is building four more of the regular DC-6 type, three for Cia. Mexicana de Aviacion and one for Delta Air Lines. New production is concentrated in the DC-6B model, the elongated, high-capacity version. American Airlines has ordered 11 of the latter model at a cost of $13,000,000, including spares; Pan American World Airways has placed an order for 18 worth $21,000,000, also including spares. Other "6B" customers are United Air Lines, six planes at "over $900,000 each," and Swissair, two planes. Douglas is also in final negotiation stages with Panagra on an order for two more 6B's. The company has also sold 11 DC-6A Liftmasters (cargo versions of the DC-6B) to the Navy; they will be known as R6D-1's.

• *Deliveries.* One hundred and sixty-six DC-6's have been delivered to 13 operators (see chart). There was also one military DC-6, the C-118 Independence, the President's plane. Douglas has also delivered three Super DC-3's to Capital Airlines.

Boeing Airplane Co.:

• *Backlog.* Boeing has no commercial backlog for its Stratocruiser at the moment. However, a cargo version of the plane, the C-97 Stratofreighter Air Force heavy transport, is in large-scale production and Boeing could conceivably sandwich any new Stratocruiser orders in with the military line. No new orders appear imminent.

• *Deliveries.* Boeing delivered 55 commercial Stratocruisers to five airlines—Pan American, Northwest, United, American Overseas and British Overseas Airways Corp. The latter bought a contract from Scandinavian Airlines System for four of the planes and had previously ordered six of its own. Aggregate value of the delivered Stratocruisers was $90,000,000: Pan Am, $31,000,000; Northwest, $16,000,000; AOA, $13,000,000; United, $12,000,000; and BOAC $18,000,000.

The Glenn L. Martin Co.:

• *Backlog.* Eastern Air Lines and Trans World Airlines have both ordered substantial quantities of Martin's new twin-engine 4-0-4, a new version of the basic Martin 2-0-2 now in airline service. Eastern ordered 30 planes at an estimated cost of $19,000,000; TWA ordered 40 worth about $21,500,000. The first 4-0-4 will be delivered to TWA in April, 1951, and deliveries will continue through April, 1952.

• *Deliveries.* Martin built 31 twin-engine 2-0-2's in the original production run; 25 went to Northwest Airlines, four to Linea Aerea Nacional, the Chilean airline, and four to Linea Aeropostal Venezolana. More recently, Martin made a second production run of a modified version of the plane, the 2-0-2A, 12 of which were built and leased to

Post-War Transport Deliveries

Customer	Lockheed Constellations	Convair Liner	Douglas DC-6	Boeing Stratocruiser	Martin 2-0-2
AOA	7	..	..	8	..
Aero Argentina	..	5	..	..	..
Aerovias Guest	1[1]	..	..	..	..
Air France	19	..	..	..	..
Air India	5[2]	..	..	..	..
Allison Div. GMC	..	1	..	..	..
American	..	79	50	..	..
BOAC	5	..	..	10	..
Braniff	..	..	6	..	..
Continental	..	5	..	..	..
Canadian Pacific	..	..	4	..	..
C & S	1	..	..	..	..
CATC (China)	..	6	..	..	..
Capital	4	..	..	..	..
Delta	..	..	6	..	..
Ethiopian	..	2	..	..	..
Eastern	21	..	..	..	..
Ford Motor Co.	..	1	..	..	..
FAMA	..	..	6	..	..
Garuda	..	8	..	..	..
Irish Airlines	5[3]	..	..	..	..
KLM	25	12	8	..	..
LAI (Italy)	..	..	3	..	..
LAN (Chile)	..	..	..	..	4
LAV	5	..	..	..	2
Mid-Continent	..	5	..	..	..
Northeast	..	5	..	..	..
National	..	..	8	..	..
Northwest	..	..	..	10	25
Orient	..	3	..	..	..
Philippine	..	..	5	..	..
Pan American	26	15	..	20	..
Panagra	..	..	7	..	..
Qantas	4	..	..	..	..
SAS	..	..	13[4]	..	..
Swissair	..	4	..	..	..
Sabena	..	6	4	..	..
S. African Airways	4	..	..	..	..
Trans-Australia	..	5	..	..	..
Trans World	50	..	..	..	12
United	..	..	46	7[5]	..
H. S. Vanderbilt	..	1	..	..	..
Western	..	10	..	..	..
Total	182[6]	163[7]	166[8]	55	43

[1] Resold to Air France. [2] Resold to Qantas. [3] Resold to BOAC. [4] Includes 8 ABA, 2 DDL, 2 DNL. [5] Contract bought from SAS. [6] Also 10 C-121 and 15 C-69 Air Force Constellations. [7] Also four converted to USAF T-29's and one company plane. [8] Also one C-118 Air Force DC-6 and 3 Super DC-3's.

TWA. There was no military production of the 2-0-2.

Consolidated Vultee Aircraft Corp.:

• *Backlog.* Convair has no backlog of orders for the twin-engine Convair-Liner. The company is now in the process of delivering the last of the planes, an order for four from American Airlines. These ships, however, were left-overs from a previous production run, not new construction. Convair has a military production line of the T-29, trainer version of the Convair-Liner, in operation.

• *Deliveries.* Convair built a total of 168 Convair-Liners. Domestic airlines, chiefly American, bought 119 of these, while foreign airlines received 51. Harold S. Vanderbilt and Ford Motor Co. each bought one plane for executive use, and Allison Division of General Motors Corp. bought one for experimental installation of turboprop engines. Four Convair-Liners were converted to T-29's and Convair retained one as a company transport.

Outlook Good

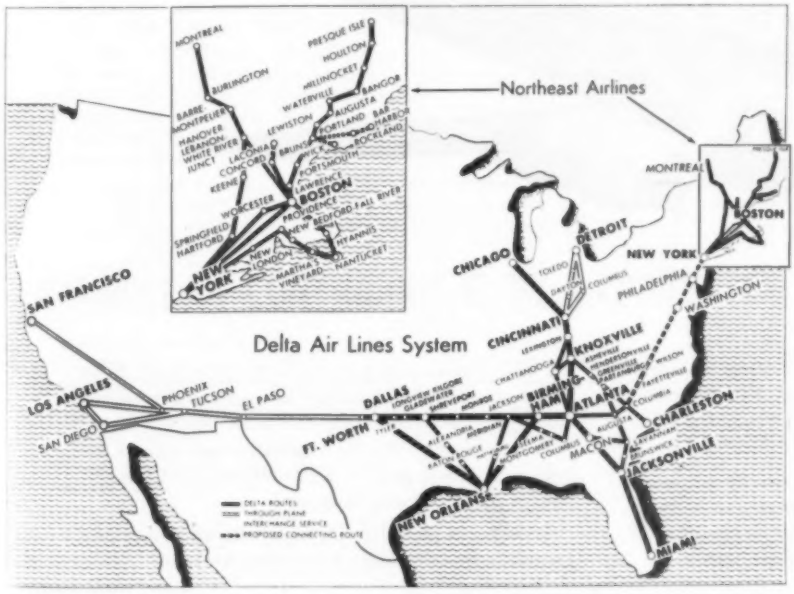
The outlook for future orders is good. There is considerable interest in the two new large transports, Lockheed's L-1049 Constellation and Douglas' DC-6B. At least one airline is also seriously considering Douglas' Super DC-3. Martin has prospective customers for the 12 2-0-2A's now on lease to TWA (which will be turned back to the company when 4-0-4 deliveries start) and also has hopes for more 4-0-4 orders. Convair, despite the completion of its commercial backlog, is still not out of the picture.

The biggest problem of transport manufacturers today is not getting orders—it is getting the materials to fill the orders, with military priorities steadily making it tougher and tougher.

Admiral Smith Named Vice President of ICAO Council

Rear Admiral Paul A. Smith, U. S. representative on the Council of the International Civil Aviation Organization, has been elected first vice president of the organization for a one-year term. Others elected were:

Col. Humberto Delgado (Portugal), second vice president; Dr. F. Duarte de Oliveira (Brazil), third vice president; Walter J. Binaghi (Argentina), chairman of the Air Navigation Commission; Dr. F. H. Copes van Hasselt (Netherlands), chairman of the Air Transport Committee; and Henri Bouche (France), chairman of the Committee on Joint Support for Air Navigation Services.



Merger Proposal—A merger agreement signed a fortnight ago between Delta Air Lines and Northeast Airlines would join two of the oldest regional carriers to form a trunkline system of nearly 5,000 unduplicated route miles, pictured above. CAB approval of Delta's pending application for a route extension from Columbia, S. C., to New York, via Fayetteville and Wilson, N. C., Washington and Philadelphia, would make the merger possible. Merger would put such diverse points as Miami, New Orleans, Chicago, Dallas, New York and Boston on one route system and would make the combined carrier rank in size only behind the Big Four. The agreement contemplates that Northeast stock would be surrendered for Delta stock in a ratio to be based on the book value of the two companies.

Aviation Calendar

Oct. 16-18—National Defense Transportation Association 5th national convention and forum on transportation, Palace Hotel, San Francisco, Calif.

Oct. 16-18—Aviation sessions of National Safety Council congress and exposition: aeronautical industries, Oct. 16; air transport, Oct. 17; joint sessions, Oct. 18, Stevens Hotel, Chicago, Illinois.

Oct. 16-20—CAA Airports Advisory Committee meeting, Hotel Texas, Ft. Worth, Texas.

Oct. 17-18—3rd annual New York State airport management conference, Hotel Onandaga, Syracuse, N. Y.

Oct. 18-19—National Conference on Industrial Hydraulics, Sherman Hotel, Chicago, Illinois.

Oct. 22-27—American Welding Society 31st annual meeting, Hotel Sherman, Chicago, Illinois. (aircraft session, October 26)

Oct. 24-26—Society for Non-Destructive Testing technical meetings in conjunction with National Metals Congress, Morrison Hotel, Chicago, Illinois.

Oct. 26-27—Tennessee aviation conference, Knoxville, Tennessee.

Oct. 26-27—Airline Ground Transportation Assn. 4th annual meeting, Hotel Roosevelt, New Orleans, La.

Oct. 26-27—Fifth annual aviation conference, Tucson, Arizona.

Oct. 30-Nov. 1—Flight Safety Foundation annual safety seminar, Denver, Colorado.

Nov. 1-3—National Aviation Trades Association 11th annual convention, Chase Hotel, St. Louis, Mo.

Nov. 20-21—Conference of National Aviation Organizations meeting, Shoreham Hotel, Washington, D. C.

Nov. 29-Dec. 1—Aviation Distributors and Manufacturers Assn. 8th annual meeting, Ambassador Hotel, Los Angeles, California.

Nov. 30—Airport fire safety clinic, sponsored by the Committee on Aviation and Airport Fire Protection, National Fire Protection Assn., Baker Hotel, Dallas, Texas.

Dec. 16—Institute of the Aeronautical Sciences 14th Wright Brothers Lecture, U. S. Chamber of Commerce Auditorium, Washington, D. C.

Jan. 8-12—Society of Automotive Engineers annual meeting and engineering display, Hotel Book-Cadillac, Detroit, Michigan.

Jan. 29-Feb. 1—Institute of the Aeronautical Sciences 19th annual meeting, Hotel Astor, New York, N. Y.

Feb. 14-16—National Aviation Education Council meeting, Atlantic City, N. J.

April 16-18—Society of Automotive Engineers aeronautic meeting and aircraft engineering display, Hotel Statler, New York, N. Y.

International

Oct. 16-20—IATA Annual general meeting, Fairmont Hotel, San Francisco, Calif.

Oct. 17—ICAO Middle East regional meeting, Istanbul.

Oct. 23—IATA Executive Committee meeting, Montreal, Quebec.

Nov. 14—ICAO Rules of the Air/Air Traffic Control Div. meeting, Montreal.

Jan. 2—ICAO Legal Committee meeting, Mexico City.

Feb. 13—ICAO Airworthiness Division meeting, location undecided.

Feb. 20—ICAO Operations Division meeting, location undecided.

April 3—ICAO Communications Division meeting, location undecided.

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Economics of All-Weather Operations

. . . ATA's Arnold Sees Single-Direction Airport as Only Alternative for High Cost of Landing Aids and Runway Stressing

THE STRONGEST endorsement yet given to CAA's program of a single-direction runway configuration came last week from an airline spokesman, who warned that aviation probably could not afford an all-weather operation unless airports are designed to such a configuration and aircraft are designed to make full use of such airport layout and design.

This appraisal of the problem of all-weather flight came from Milton W. Arnold, vice president-operations and engineering, Air Transport Association, in a speech October 11 before the fall meeting of the American Society of Civil Engineers in Chicago.

"I believe we have now reached the stage in aviation where we must consider aircraft design, airport design and implementation, and all-weather operation as a basically single problem," said Arnold. "We must turn our attention to careful cost analysis and make a comparison of this analysis with anticipated return from capital investments such as our airports and facilities for instrument operations represents."

Diminishing Returns

It's a matter of diminishing returns, the ATA official said, pointing out that somewhere along the line the cost of reducing cancellations and interruptions to scheduled airline operations exceeds the value of the benefits to be derived from all-weather operation.

At an expenditure of something less than $20,000,000 over a four-year period for improved navigational aids, he continued, the revenue losses suffered by the domestic airlines due to delays and cancellations have been cut from over $50,000,000 a year to below $30,000,000 a year, due primarily to reductions in operating limits which eliminated 56.5% of the previously non-flyable weather.

However, Arnold cautioned, further progressive reductions from 200 feet ceiling and one-half mile visibility to a zero ceiling and 1/16 mile visibility will become increasingly costly in relation to results obtained. This raises the question of whether attainment of the all-weather goal will be a profitable undertaking, and the ATA official gave it as his opinion that it could be, with "careful planning in the field of aircraft and airport design and in the field of electronics and visual aids."

$10 Million per Year

To equip the entire domestic airline fleet of approximately 1,000 aircraft for 100% all-weather operation would cost approximately $50,000,000, or $50,000 per plane, exclusive of maintenance. And since most aircraft equipment is amortized on a five-year basis, the airlines would have a recurring yearly expense of $10,000,000 for airborne equipment alone. Thus the cost of doing the job by automatic electronic means alone would appear to be out of reason, Arnold declared.

He said such an expenditure, while prohibitive, could prove to be unnecessary, since a combination of visual ground aids and simpler airborne equipment will certainly permit operation down to 1/16th of a mile and perhaps to zero. This simpler equipment would cost about $15,000 per plane, instead of $50,000, but its use would be conditional upon adequate implementation of the runway or runways to be used. This brings the airport design into the picture.

To equip a single runway for all-weather operation will cost a minimum of $350,000 and may run to over $1,000,000 if a fog dispersal unit is required for operation below 1/16th of a mile visibility, Arnold told the engineering group. In addition, the cost of a single runway stressed sufficiently to support a Stratocruiser is approximately $10.50 per square yard or $1,500,000, and a medium heavy aircraft such as the DC-6 and Constellation requires a runway costing on the order of $7.50 per square yard or $750,000.

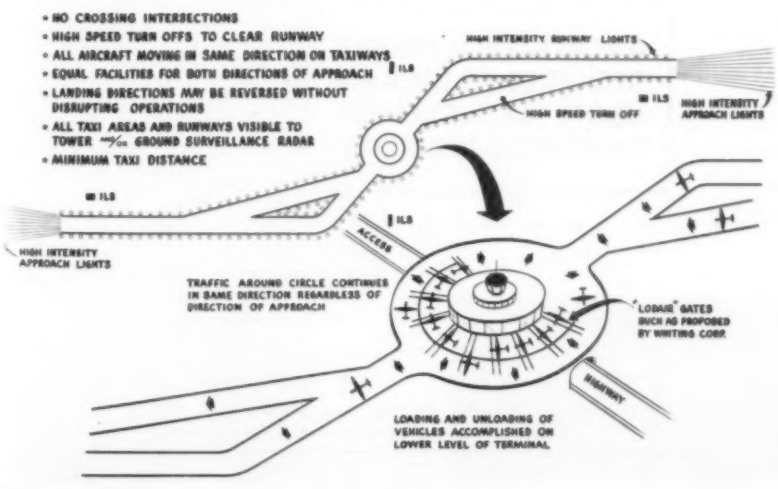
Basic Costs Multiply

"When these basic runway costs are multiplied by the number of runways normally comprising the airport, and when this sum is added to the cost of implementing parallel runways for 100% all-weather operation, then it becomes clearly evident that we must design our aircraft and our airports to make maximum use of these expensive facilities," the speaker asserted.

Terming today's commercial airports "monstrosities" from the standpoint of size and area, he said there is no justification for building multi-runway airports with clear weather approaches from at least six directions, since during instrument weather conditions the airlines use, at most, only two runways—one for landings and one for departures.

There are two basic reasons for this: first, there are the operational limiting factors of other air traffic, obstructions, terrain and proximity of other airports; second, the economic factor of equipping even one runway for all-weather operation is such that only the larger cities can afford a runway fully equipped with ILS, precision approach radar, high-intensity approach and runway lights, surface

EXAMPLE OF CONTINUOUS FLOW AIRPORT


• NO CROSSING INTERSECTIONS
• HIGH SPEED TURN OFFS TO CLEAR RUNWAY
• ALL AIRCRAFT MOVING IN SAME DIRECTION ON TAXIWAYS
• EQUAL FACILITIES FOR BOTH DIRECTIONS OF APPROACH
• LANDING DIRECTIONS MAY BE REVERSED WITHOUT DISRUPTING OPERATIONS
• ALL TAXI AREAS AND RUNWAYS VISIBLE TO TOWER w/o GROUND SURVEILLANCE RADAR
• MINIMUM TAXI DISTANCE
HIGH INTENSITY RUNWAY LIGHTS
ILS
ILS
HIGH SPEED TURN OFF
HIGH INTENSITY APPROACH LIGHTS
ILS
ILS
ACCESS
HIGH INTENSITY APPROACH LIGHTS
TRAFFIC AROUND CIRCLE CONTINUES IN SAME DIRECTION REGARDLESS OF DIRECTION OF APPROACH
"LODAIR" GATES SUCH AS PROPOSED BY WHITING CORP.
HIGHWAY
LOADING AND UNLOADING OF VEHICLES ACCOMPLISHED ON LOWER LEVEL OF TERMINAL

detection radar and similar necessary equipments.

Change Basic Design

And since these economic and operational limitations which restrict an airport to a parallel or two-runway operation are not likely to be overcome, the problem is to make these two runways do the job under both instrument and clear-weather conditions. This, however, can be accomplished only if there are changes in aircraft design. Here, basically, is what Arnold sees as being required in aircraft design:

"First, and possibly most important, we must have crosswind or caster-gear landing structures on the airplane; we must have slower landing speeds, shorter takeoff runs and improved braking characteristics; and we must have an aircraft designed primarily for short-haul operation that is capable of operating into smaller airports close-in to the downtown area."

If these conditions of aircraft design are met, Arnold declared, then the case for the parallel runway airport becomes more clear, and if we can accept the parallel-runway airport, then aviation can afford an all-weather operation. He emphasized, though, that a parallel-runway airport is feasible only if the crosswind or caster-gear is successfully adapted to four-engined transports.

(In this connection, it is interesting to note that the Air Force currently is sponsoring development of a caster landing gear for the C-54. The gear at present is available only for transport-type aircraft such as the twin-engined Beechcraft and the DC-3.)

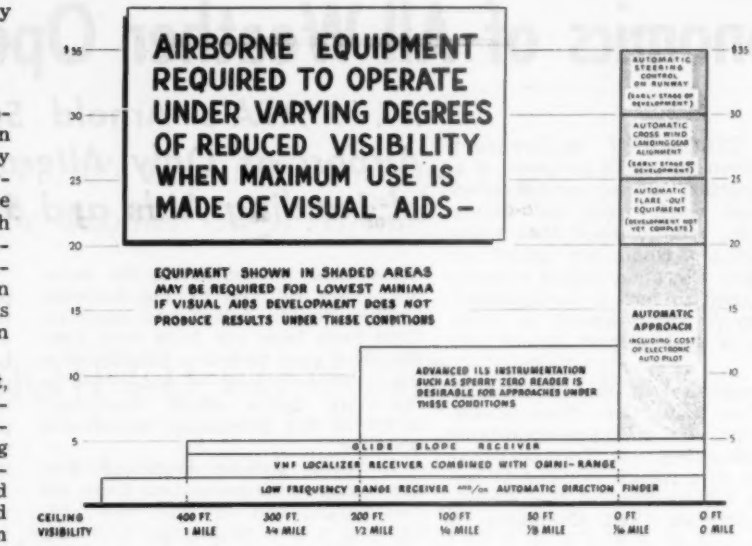
Operational Advantages

Outlining the operational advantages of a uni-directional airport, the ATA official told his Chicago audience that:

1. In congested areas, the number of airports which can be used during instrument conditions is dependent to a large extent on the circling radius of aircraft. By polarizing all runways and traffic patterns in such an area, it should be possible to achieve much closer spacing of airports with no lessening of safety.

2. Simplified traffic patterns resulting from single-axis approaches should go a long way toward unsnarling the traffic problem, particularly since airport surveillance radar could be much more effective under these conditions than with the present random picture seen on radar screens.

3. Airport surface traffic control would be greatly simplified by a much more efficient and simpler taxiway pattern, and the airport layout would enable the tower to be placed so that better visibility of the operational area could be achieved.


AIRBORNE EQUIPMENT REQUIRED TO OPERATE UNDER VARYING DEGREES OF REDUCED VISIBILITY WHEN MAXIMUM USE IS MADE OF VISUAL AIDS—
EQUIPMENT SHOWN IN SHADED AREAS MAY BE REQUIRED FOR LOWEST MINIMA IF VISUAL AIDS DEVELOPMENT DOES NOT PRODUCE RESULTS UNDER THESE CONDITIONS
AUTOMATIC STEERING CONTROL ON RUNWAY (EARLY STAGE OF DEVELOPMENT)
AUTOMATIC CROSS WIND LANDING GEAR ALIGNMENT (EARLY STAGE OF DEVELOPMENT)
AUTOMATIC FLARE-OUT EQUIPMENT (DEVELOPMENT NOT YET COMPLETE)
AUTOMATIC APPROACH INCLUDING COST OF ELECTRONIC AUTO PILOT
ADVANCED ILS INSTRUMENTATION SUCH AS SPERRY ZERO READER IS DESIRABLE FOR APPROACHES UNDER THESE CONDITIONS
GLIDE SLOPE RECEIVER
VHF LOCALIZER RECEIVER COMBINED WITH OMNI-RANGE
LOW FREQUENCY RANGE RECEIVER AND/OR AUTOMATIC DIRECTION FINDER
ESTIMATED COST IN MILLIONS OF DOLLARS TO EQUIP AN AIRLINE FLEET OF 1000 AIRCRAFT
$35
30
25
20
15
10
5
CEILING
VISIBILITY
400 FT. 1 MILE
300 FT. ¾ MILE
200 FT. ½ MILE
100 FT. ¼ MILE
50 FT. ⅛ MILE
0 FT. ⅛ MILE
0 FT. 0 MILE

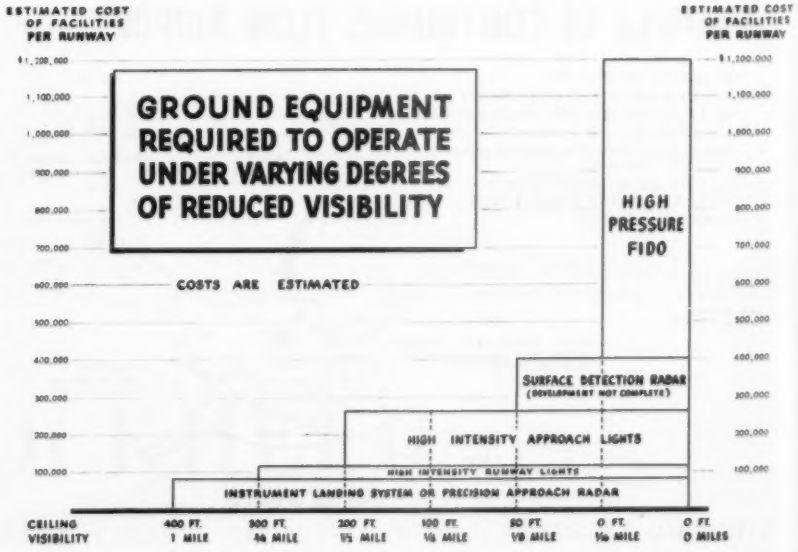
4. Access to the airport and the location of the airport in relation to principal highways and population areas would be facilitated.

5. The single factor of snow removal can cause hours of delay in airline operations, and the ability to concentrate on the removal of snow from a single runway or parallel runways should cut delays from this cause.

Would Reduce Investment

Other obvious advantages of the single-direction airport layout are that (1) it should reduce the capital investment, maintenance and operating costs of airports and thus eventually reduce airline operating costs through a lowering of landing fees; and (2) it should make possible longer runways, thereby permitting consistently higher payloads and more complete utilization of the aircraft under CAA performance specifications and limitations.

Arnold concluded with the statement that if his recommendations are met as to improvements in aircraft design, simplification of airport layout and a closer-knit relationship between aircraft design, airport design and the development of electronic and visual aids, "then all-weather operation becomes a very feasible goal and will prove to be a profitable undertaking. If they are not met, then that goal becomes a most expensive one, and in all probability will prove to be economically unjustified."



"51% GREATER ACCURACY with the Honeywell Electronic Fuel Gage!"

W. C. LAWRENCE
Director, Design Engineering
American Airlines

MR. LAWRENCE states, "To us, the two important advantages of your gage are accuracy and dependability. We are now able to carry larger payloads with the Honeywell Electronic Fuel Gage, because this instrument affords indications having 51% less error than former methods used to indicate fuel supply." That's why 5 major airlines, like American, use Honeywell Electronic Fuel Gages. Minneapolis-Honeywell, Minneapolis 8, Minnesota. In Canada: Toronto 17, Ontario.

Honeywell
AERONAUTICAL CONTROLS

FORMULA ADDS GROSS WEIGHT PAY

ALPA Seeking Lower Flight Time for Faster Planes

By Gerard B. Dobben

INCREASED productivity of bigger and faster aircraft forms the basis for a demand for a reduction in the flight time and increase in pay for the pilots of American Airlines in their negotiations for a new contract with the carrier.

In proposals now being considered, the pilots, represented by the Air Line Pilots Association, seek a new contract which will reduce flight time on Douglas DC-6's from 85 hours a month to 70 and on Convairs from 85 to 73 hours, with an increase of $21.31 a month for DC-6 and $17.78 for Convair pilots. The new pay formula includes an added factor which is related to the gross weight of the aircraft.

As this issue went to press, ALPA and American's management, after months of negotiations, were considering an arbitration proposal submitted by the National Mediation Board. The pilots had voted to give their leaders the authority to call a strike.

This strike vote was taken as a part of the procedures outlined under the Railway Labor Act for gaining the appointment of a Presidential fact finding board which normally is appointed when a strike threatens to interrupt commerce and endanger national security. If arbitration is rejected, appointment of the Presidential fact finding board is a certainty.

Cite Rail Precedent

In support of their demands for mileage limitation, the pilots point out that Decision 83, the basic wage formula incorporated in the Civil Aeronautics Act, strongly supports such a limitation. A similar limit has been in effect for railroad engineers for some time, the pilots state. The purpose of mileage limitation is to permit the pilots to share in the benefits from the increased productivity of the present as well as proposed aircraft.

Answering charges of featherbedding, the pilots state that when American Airlines voluntarily reduced the work week of its unorganized employes from 48 to 40 hours a week, it was not called featherbedding. In addition, the reduction of the flying time will make jobs for more pilots which they claim is of tremendous importance to national defense.

ALPA claims that there is a general recognition today of the principle that employes should share in the productivity resulting from technological progress. They assert that today there is an increase in airplane miles flown of about 32% on Convairs and about 41% on DC-6's over the DC-3's. Their requests, they stated, represents a pay increase over DC-3's of 33.4% on Convairs and 54.9% on DC-6's, and a decrease of about 14% and 17.6% in flying time.

Mileage Formulae

Convair pilots, based on 85 hours of half day and half night flying, currently receive $1,019.85 a month and under the new formula they would receive $1,037.63 for 73 hours of flying.

The formula uses a base of 13,600 miles flying on DC-3's in setting the mileage limitation for Convairs. The formula follows:

	Miles
85 hours × 225 mph= ...	19,125
Less DC-3 base	13,600
Increase in productivity ..	5,525
Divide by 2	2,762
Add DC-3 base	13,600
Convair limit	16,362

16,362 miles ÷ 225 mph = 73 hours per month.

The formula for DC-6 mileage follows:

	Miles
85 hours × 250 mph = ...	21,250
Less DC-3 base	13,600
Increase in productivity ..	7,650
Divided by 2	3,825
Add DC-3 base	13,600
DC-6 limit	17,425

17,425 ÷ 250 mph = 70 hours per month.

The pay formula provides a slight increase in mileage pay and a proposed payment of one mill per mile for each 6,000 pounds gross weight. Pay formula for Convair pilots follows:

Present Rate

Convair at 196 mph. and 40,500 pounds gross weight.

Present pay for 85 hours flying

Base pay	$ 300.00
Hourly pay	584.38
Mileage pay	135.47
Gross weight pay	.....
Total pay	$1,019.85

Proposed Rate

Mileage limitation and gross weight pay (one mill per mile for each 6,000 pounds gross weight). 40,500 pounds ÷ 6,000 pounds = 6.8 mills per mile.

Proposed pay for 73 hours flying

Base pay	$ 300.00
Hourly pay	474.50
Mileage pay	151.87
Gross weight pay	111.26
Total pay	$1,037.63

PEOPLE IN THE NEWS

Don Steven Burrows, formerly deputy for financial management in the office of **Eugene M. Zuckert,** assistant secretary of the Air Force, has been appointed to head the newly established comptroller's office within the staff of the National Security Resources Board.

Clarence F. Lea, director of governmental relations for the Transportation Association of America, has been named a member of the Policy Administration Board of the National Cooperative Project, TAA, which is dealing with economic and legislative issues of the transportation problem in an effort to assist the Congressional committees on interstate commerce. **Dr. George P. Baker,** professor of transportation of the Harvard Graduate School of Business Administration, has been named consultant to the Policy Administration Board.

Dr. Frederick W. Ross, prominent in the field of aerodynamics, has been appointed professor of aeronautical engineering at the University of Detroit.

New Navion—1951 Navion "Super 260," now coming off the San Diego assembly line of Ryan Aeronautical Co., features a new external baggage door. Baggage can still be reached in flight through the divided back of the rear seat. Other new features include redesigned cabin styling, improved cabin cooling, a push-button starter and a new all-metal Hartzell propeller.

NAVY

adds new logistic support!

Douglas DC-6 enters military service

To meet the need for increasing air lift, the U. S. Navy has ordered a fleet of R6D-1 aircraft.

This is the Navy's designation for the DC-6A *Liftmaster* which was developed from the world-famous Douglas DC-6 passenger transport.

On long missions this 320 mph airplane has double the cargo capacity of the R5D (C-54), yet it is one-third less costly to operate, takes one-fourth less manpower.

In the R6D-1, Douglas provides a ready answer to an urgent military need for a high-speed, long-range, *dependable* air transport.

DOUGLAS AIRCRAFT COMPANY, INC., SANTA MONICA, CALIFORNIA

DEPEND ON DOUGLAS

30TH ANNIVERSARY YEAR

Between the Lines:

Hollywood and the Moon

By James J. Haggerty, Jr.

PERMIT us to digress a moment from the myriad problems of expanding our air forces and tell you about an aviation movie we ran into the other night, a thing called "Destination Moon," produced by George Pal.

Every now and then the motion picture industry comes up with a good aviation picture, technically accurate and with the wild blue yonder pared to a minimum. "Destination Moon," however, is not one of them.

It goes something like this:

The lead-in character is a John named General Thayer, who, we learn, has "crusaded himself out of the service" by plumping for rockets to the moon. We suspect that he got himself flung out of the service on a Section Eight, because throughout the picture he exhibits some rather alarming crackpot tendencies.

At any rate, the General has finally come up with a moon rocket project that he thinks is "it." Naturally, he doesn't bother the Air Force or Navy with his idea but takes it to an outfit called Barnes Aircraft Corp., which looks suspiciously like Lockheed because it is very busy building Constellations, probably under license to Lockheed because Lockheed is saturated with Constellation backlog.

The president of this outfit is Jim Barnes, who is thirtyish, clean cut and very handsome, not at all the Kindelberger-Douglas type of aircraft executive. When we first meet Jim he is busy putting the finishing touches to a cockpit assembly on the production line while his employes look on in awe.

Jim is very skeptical when the General first introduces the subject of the rocket to the moon but two and a half sentences later he is sold. He shows, however, that despite his lack of years he has learned his way around the industry. "What about the money?" he asks, hinting that maybe the government ought to get in the act. The General, though, is having none of that government stuff. He admits it will take some money; it's too big for one company, but the combined aircraft industry can float it. What's $20-30 billion? So they all skip a dividend, that ought to cover it.

In the next scene, Jim is trying to sell the rest of the industry on the project. This may sound like a tough project, but to Jim Barnes it's nothing. Know how he does it? He shows them a Woody Woodpecker cartoon, in which Woody is taken on a ride to the moon in a rocket and the intricacies of rocket propulsion are explained to Mr. Woodpecker. This delights the audience immensely, they applaud boisterously when it ends and they are now all eager to back the project. One of them, though, remains calm amid the emotion. "What about the money?" he asks. "What about a government subsidy?"

The General, who appears to have a peculiar aversion to government money, sluffs this off with some of the vaguest language we've ever heard outside of a Congressional hearing, mumbling something about getting to the moon before that "other country does" for some unexplained military advantage.

So they build the rocket. It is a handsome thing, about the size of Empire State building, powered by a 3,000,000-pound-thrust atomic engine. And they take off for the moon. Naturally, Jim is pilot and the General is co-pilot. They have one minor adventure en route. It seems the radar antenna becomes frozen and they have to climb outside the ship to pry it loose. In the excitement, one of their crew members floats away from the ship and hangs suspended in space. It is carefully explained that they are in a "free orbit" and he cannot fall.

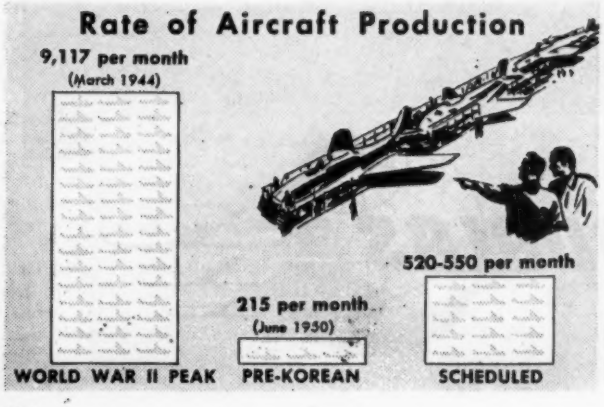
There are some tense moments as they try to throw him a rope but fail. But Jim Barnes, thinking furiously, comes up with the answer. Wrapping his legs around an oxygen tank, he squirts himself out into space by opening the oxygen valve, thereby getting thrust. With remarkable skill for one who has never before flown an oxygen bottle in a free orbit, he squirts himself to the lost crew member and squirts them both back to the ship.

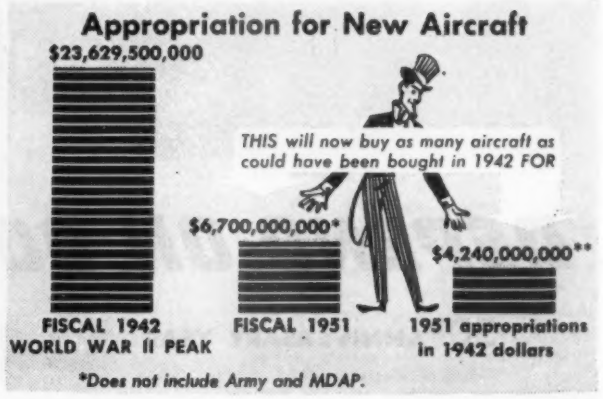
The rest of the trip is uneventful, except that Jim overshoots his landing field on the moon a trifle and burns up a lot of precious "reaction mass." Then, apparently forgetting that the big purpose in getting to the moon was to beat that "other country" to it and set

(*Turn to Page* 22)

The New Aircraft Production Program

Compared with World War II Peak




Appropriation for New Aircraft
$23,629,500,000
THIS will now buy as many aircraft as could have been bought in 1942 FOR
$6,700,000,000*
$4,240,000,000**
FISCAL 1942
WORLD WAR II PEAK
FISCAL 1951
1951 appropriations in 1942 dollars
*Does not include Army and MDAP.

First in SAFETY

It's Sunday, June 29, 1935, at Stanley Switlik's summer place a few miles outside of Trenton. Here, today, are gathered some of the most famous people in aviation—among them, Amelia Earhart, America's great aviatrix. They are here to witness the first American demonstration of a parachute tower. The tower was designed by engineers of the Switlik Parachute Company in order to develop parachute mindedness in the public and to further safety in training.

The development was such a success that the armed forces adopted it as a fundamental part of their paratrooper training program.

It has even reached the amusement centers where parachute towers are providing an educational thrill to fast collecting crowds.

Still another first in Switlik's continuing research for greater safety.

SWITLIK

PARACHUTE COMPANY, INC.

SWITLIK SAFE-CHUTES

CALOR AND HANCOCK STREETS, TRENTON, NEW JERSEY, U. S. A.

PRODUCTION SPOTLIGHT

Coordination Slip-Up: **Bell Aircraft Corp.'s** recent announcement about an Army order for H-13D helicopters apparently ran afoul of inter-service coordination. The order was announced as the "largest order for military helicopters" ever issued. It was the Army's largest order; but it turns out that the Navy had very recently issued a much larger one. Bell's order was for 82 planes. Piasecki Helicopter Corp. had previously received a Navy order for HUP helicopters which ran well over 100 units.

Aluminum Shortage?: *The aluminum industry can't get together on whether there is or is not an aluminum shortage. Aluminum Co. of America has been taking large advertisements in leading newspapers to assure users that there is plenty of aluminum production despite rumors to the contrary. "From us, and from other aluminum producers," Alcoa said, "there is plenty of aluminum production for ANY announced military program." The ink was hardly dry on the Alcoa ads before Reynolds Metals, Inc., bounced back with a series of ads stating just the opposite. Reynolds said that while we have four times as much aluminum production as before the last war, it is not enough. In the ads, Reynolds also takes exception to the proposal that Canadian aluminum production be subsidized, pointing out that Canadian supply sources are concentrated in one vulnerable area and new aluminum capacity can be provided in the U. S.*

'Copters for Algeria: The French Government has applied to the Economic Cooperation Administration for a procurement authorization to buy three small helicopters (Bell type or equivalent) and spare parts. The planes will be used for dusting and spraying work in Algeria. The prospective purchaser is the Societe Algerienne de Travaux Agricoles, c/o Chambre de Commerce, Palais Consulaire, 6 Blvd. Anatole France, Algiers, Algeria.

Aircraft Shipments Up: *Shipments of aircraft for the first seven months of 1950 (the latest figures available) are up almost 3,000,000 airframe pounds over last year. Shipments through July totaled 22,363,700 airframe pounds, which compares with 19,700,000 pounds for the same period in 1949. About 87% of the 1950 shipments were military. Shipments of aircraft engines for the first seven months of this year totaled 31,475,600 horsepower, up about 6,500,000 horsepower from last year. Engine shipments were about 97% military.*

B-47 Subcontract: **Chance Vought Aircraft Division** will help build the **Boeing B-47** jet bomber. Chance Vought has received a Boeing sub-contract for tooling and fabrication of major components. C-V had previously received a **Lockheed** subcontract for P2V patrol bomber component fabrication. The two contracts will require hiring 700 additional persons at C-V's Dallas, Tex., plant.

Rocket Depot Expands: *The Navy will spend $35,000,000 to expand its facilities at the Naval Ordnance Depot, Shumaker, Ark. The money will provide new production lines for the assembly and loading of aircraft rockets. Four private firms will handle the construction work.*

AF Lab to Move: The long controversy over whether the Air Force's **Watson Electronics Laboratory** should be moved from Eatontown, N. J., to Griffiss AFB, Rome, N. Y., has been settled. The President has signed a bill permitting the move to Rome as per Air Force request. The President also signed a bill authorizing an additional $57,500,000 for the construction of the Arnold Engineering Development Center, the Air Force's new research center. This makes a total of $157,500,000 authorized for the project.

Hiller Backlog: *Hiller Helicopters, Inc., now has a backlog of more than $1,000,000 in military and commercial orders. Production for the first nine months of 1950 reflected an increase of more than 300% over 1949 sales.*

—J.J.H.

(*Continued from Page 20*)

up some unexplained type of military weapon, they all clamber out to take pictures and participate in a radio broadcast to earth. These missions accomplished, they prepare to return. But Jim has bad news for them. They don't have enough "reaction mass" to get home.

They get instructions from earth: Lighten the ship. So they get rid of a few tons of assorted paraphernalia. But the word comes back from earth: They're still 110 pounds heavy. Three million pounds thrust but this extra 110 pounds is going to keep them on the moon! They debate. There are still several tons of odd clocks, dials and other junk in the cabin of their rocket but they apparently overlook this in their excitement. They decide that one of them will have to stay. They go through a few minutes of heavy dramatics about who is going to stay on the moon but then it develops no one will have to. Jim Barnes figured it out. It appears he had overlooked a radar set and a 70 pound space suit all the time. So they throw them overboard and go home. That's all.

We just thought we'd mention this picture in case there are any moon-rocket manufacturers in the industry who would like to pick up a few tips.

INDUSTRY PERSONNEL

Walter Tydon, veteran aircraft designer with 24 years of experience in the industry, has been appointed chief of design engineering of the Fairchild Aircraft Division. Prior to his assignment with Fairchild, Tydon served as chief design engineer of Curtiss-Wright Aircraft Corp.'s plant at Columbus.

Tydon

John M. Rogers, who retired last year as vice president of Douglas Aircraft Co. after more than 25 years in the aviation industry, is now doing sales consultant work for other firms in addition to consulting for Douglas. His office is at his home, 107 North Canyon View Drive, Los Angeles 49, California.

A. J. (Jack) Wilson, formerly manager of American Box Co.'s flight department, has been named southeast regional sales manager for Cessna Aircraft Co. **Robert Chatley,** formerly with Yingling Aircraft Co., joins the Cessna organization as director of sales promotion and public relations.

John G. McKeon, former vice president and treasurer and subsequently liquidating officer of Aviation Maintenance Corp., Van Nuys, Calif., is now associated with Arthur Young & Co., public accountants serving Lockheed, Ryan, Pacific Airmotive and other aviation accounts.

ICAO Airworthiness Standards . . .

. . . key to public confidence in transports

By Richard G. Worcester

PARIS—The International Civil Aviation Organization meeting here in September will be remembered as another milestone in the prolonged international discussions on the steps being taken to match standards of air safety to the increasing complexity of modern aircraft and to the progressive knowledge of the factors which determine the basis for airworthiness and operational requirements.

The purpose of the meeting, in the words of the final report, was "to reach agreement on draft proposals for climb standards for acceptance by the Airworthiness and Operations Divisions." These standards along with others discussed are intended to replace the existing international requirements which were based on the U. S. standards for transport category aircraft. The new proposals aim at replacing the current fixed margins with variable factors where statistical information on the variability of the variables is known.

It is the intention of ICAO that the Paris discussions will form the basis of a series of revised standards for consideration at the next session in 1951 and ultimately be written into the record as directives instead of the comparatively loose "recommended practices" which form the titles of Annex 6 and Annex 8 of the Convention laying down the international standards.

Center of Discussion

ICAO in Paris has been examining the international performance requirements which are contained in two volumes:

Annex 6 to the Convention on International Civil Aviation—Operation of Aircraft Scheduled International Air Services. Standards and recommended practices published by the ICAO Council in September 1949.

Annex 8 to the Convention on International Civil Aviation—Airworthiness of Aircraft. Standards and recommended practices published by the Council in December, 1949.

Only a small section of these two volumes was under discussion—the part referring to performance—and especially the takeoff and climb requirements. To justify a revision of the few pages concerned, various countries—mainly the U. K.—have prepared 32 working papers covering the whole problem in great detail. Many changes have already been approved in principle and these—along with the new resolutions at Paris—will go to the next full session where they may be written into the record and applied as a new working code of safety for operators and manufacturers.

Close to Agreement

If the Paris talks are examined in the light of the overall progress made during the last two years, it is clear that the measure of agreement between the nations is now closer than ever before. At every stage in the discussions there have, of course, been disagreements, but these should not be exaggerated, even though in the conferences they have at times seemed almost insurmountable. Take, for instance, possibly the sharpest issue at Paris the U. S. and Dutch preference for takeoff by segmental measurements, and the British and French support for the continuous recording method. The difference amounts to less than 4% in performance.

All-Wing Weight Lifter—The need for air transportation to distant theaters of war has suggested serious reconsiderations of once-abandoned designs like this Kaiser freighter with a span of 290 feet (60 ft. more than the B-36) and powered by four 4,000-hp. late-model R-4360 engines. As speed is not a primary need in such an aircraft, this particular all-wing study seems unnecessarily clean.

Working Together

Many of the most controversial points centered on marginal assumptions in the most critical case and would seldom, if ever, be encountered in practice. The very fact that near-unanimous agreement is being sought on these very detailed questions shows how narrow are the disagreements among the various nations and how advanced is the general recognition that all nations must work together.

A good illustration of the objectivity of the delegates was when nations endorsed proposals which were right from a safety standpoint but which adversely affected them domestically. Small countries, for instance, have always been the first to lend

Design Trends

By Richard G. Worcester

THE EFFECT of age on aircraft performance is a difficult question which is now getting much attention. **Decline in engine output** is one result, but this can be accurately measured and expressed as one of the factors which govern the length of overhaul life. The effect of continuous service upon the airframe is the other result which is less easy to watch and analyze.

The International Federation of Air Line Pilots Associations has recently expressed to ICAO its concern about the deterioration of performance when coupled with the progressive increase in gross weight. But IFALPA does not apparently take into account that, although the gross weight of transports is allowed to rise with time, it would go up **even more rapidly** if age were not a restraining influence.

It is difficult to be dogmatic about this subject in the absence of any real information but the following steps could be taken by the operators: (a) to start a new campaign of general cleanliness when walking over the aircraft; (b) to make everybody aware of the need to stick to the walkways and so avoid dents in the nearby skin panels; (c) to introduce a more rigid inspection of doors, fillets and unstressed fairings, and (d) in fairness to the pilots a greater readiness to replace or exchange deformed fillets. The tricky thing is that a deformed fillet might add a mile or two to the stalling speed, or make the aircraft drop a wing and yet preserve an innocent appearance.

The designers for their part could do at least two things: (a) to use heavier gauge skins and make the skins take more loads, and (b) to use materials with the smallest elongation. If materials were used with a proof stress coincidental with the ultimate stress, the parasite drag difference between similar aircraft would, surely, be nil.

•

It does not seem to be widely understood that the large number of prototypes is the outcome and not the cause of French weakness in the air. Frenchmen know full well that they cannot build up air power sufficient to resist aggression by a major power, within the framework of the Fourth Republic. They see nothing defeatist in accepting military unpreparedness so long as the U. S. and U. K. cannot concede the establishment of a European State with a European Ministry of Defense.

It is as well to make it clear how very wrong the French are, not to realize that a European Air Force already in effect exists. There is standardization of design requirements leading directly to the use of interchangable weapons, radar, training, technique and a common language, yet the French contribution in no sense matches the size of their population. It is having reached the prototype stage in aircraft construction that their self-confidence seems to desert them.

The French need desperately a greater sense of public duty to discipline the individualism of the aviation community and only then can they make their defense preparations an effective contribution to Western military strength. But can anything be done at once? Perhaps the French have found a catalyst in the energy and drive which they are showing in getting the Dassault Ouragon and the D. H. Vampire into production.

•

Not so long ago we (in this column) shared the skepticism of many over the **effect of humidity** upon aircraft performance. Second thoughts on the subject, following publication of several recent papers, suggest this is a factor of some significance. (In the case of a four-engined aircraft taking off in the most adverse humidity conditions the increase in take-off distance to clear 50 feet is given as 17%.) It will be at least four years before the various ICAO countries will have collected enough data to provide a statistical background to justify a "rational" approach to humidity. In the meantime, presumably, the much-despised fixed margins ought, perhaps, to be applied more generally to civil and military flying (including, especially, ship-based operations).

support to more extensive systems of route diversions than they possess themselves. This shows the adult approach to international civil aviation by all the air trading nations except the Russians and their satellites who boycott ICAO.

Democratic Procedure

Superficially, the United States, as builder of the world's principal transports, is in a strong position at ICAO and at any international meeting. But the essentially democratic element in ICAO has encouraged the delegates of the small countries to examine each working paper individually and critically, and judge each recommendation on its own merits.

The lack of resources of the smaller countries sufficient to enable them to put forward very many fully documented cases means that, in practice, the delegates of the major countries put forward proposals and counter-proposals while the smaller countries act as a kind of jury. At Paris, as at previous sessions, the United Kingdom has taken the initiative in what they call rational proposals (thus wrongly implying that the time-honored international standards are irrational).

The effect of many—indeed, most—of the new proposals is to reduce the severity of the requirements and the United States, in urging a conservative and cautious approach has found itself in the unaccustomed situation of seeming to obstruct progress. This has never been the motive and the U. S. has been conscious only of the responsibility which would weigh heavily on the U. S. aircraft industry if, as could happen, a whole generation of aircraft were built and operated to standards which were based on wrong premises.

Cautious Progress

That is why the U. S. statement that "it is suggested that a rational solution to the problem of takeoff must reflect adequately actual operation of the airplane" is not the platitude which, at first, it resembles, but really goes right to the heart of the matter.

The U. S. view of the proposals—which are too detailed to be listed here—are summed up by the official opinion that "the desirability of rationalizing the takeoff standards appears to have gained general recognition" but they go on to advise the following changes to the existing regulations:

(1) That required vertical clearance over the first upstanding obstacle, as defined by the standard ob-

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stacle clearance profile, be established at 25 feet;

(2) **That takeoff distance** be evaluated with full account taken of temperature and humidity on either an ambient or declared basis, and

(3) **That takeoff flight path** be measured only by the segmental method.

It remains to be seen exactly in what form the revised requirements will go forward but the implications are already plain. Operators will find that the proposed revisions will have two main effects.

First, the reduction in standards will call for a more comprehensive statistical approach to determine the variables which justify such reductions. Thus, there will be a premium on knowledge and the airline with the most advanced information on, for instance, humidity will come closer to the basic concept than the penalizing alternative of a fixed margin.

Urge Standard Use

Second, they will be urged, along with industry, to apply the standards forthwith wherever possible, even though it will be at least four or five years before the directives could be built into new designs. Just as the present ICAO standards are regarded by operators and the industry alike as a hallmark of efficiency, even though they are not mandatory, so the revised "rational" requirements will also be regarded as the correct standard. Makers who can obtain better payloads under the revised requirements will not be slow to point this out to the world at large.

The greatest danger applies to the possibility that small companies, or operators in small countries, will be tempted to snatch the advantages in payload but fail to match them by an adequate understanding of the meteorological, geographical and technical conditions under which they are permitted. This comes back to the U. S. fear of the consequences of failure to understand the practical issues. In the phrase of the U. S. working paper, "the merits of the general approach to the problem can be seen quite clearly. However the appropriateness of some of the details . . . are not so obvious."

There is no wish to carp at proposals which the U.K. have prepared on their own initiative and which go far to meet the acknowledged inadequacies of Annexes 6 and 8. There is, however, a genuine apprehension that a small mistake can so quickly undermine the confidence of the world's air traveling public in the capacity of the aircraft industry (especially the U. S. industry) to produce reliable vehicles.

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CAA's International Region Spreads Aviation Know-How

By WILLIAM D. PERREAULT

WHEN THE North Koreans invaded Seoul, capital of South Korea, they displaced one of the Civil Aeronautics Administration's international missions. If the Communists marched into Athens, Greece; Istanbul, Turkey, invaded Manila or revolted in Bogata, Colombia, there, too, CAA missions and international field offices would be disrupted.

For CAA, an agency whose work in safety regulation, establishment of Federal airways, etc., is normally associated with the domestic scene, has wide-scale international commitments. Some of these commitments, primarily those associated with the international field offices, are the result of operations by U. S. international air carriers, scheduled and non-scheduled.

The mission at Seoul, like most CAA missions, was a one-man affair —the man was Addison Beideman— and his offices have since been moved to Tokyo until further notice. As an expert on airport matters he had been sent to Seoul as resident supervisor of the new airport being constructed there under contract with ECA funds. CAA had been called on to render technical assistance in the ECA-supported construction program.

Mission in Greece

Some CAA missions have two or three advisors. Probably the largest of the missions was that in Athens, Greece, where there were as many as 16 CAA people at one time. This has now been reduced to eight and still remains the largest mission activity. As in Seoul, this is an ECA project in which CAA has been called in for assistance. The work consists of helping the Greeks establish their airways systems and in training Greek nationalists in related work.

As a result of President Truman's Point 4 Program, the international operation of CAA can be expected to become increasingly important. The Point 4 Program deals with the aid to foreign governments in developing the natural resources of their countries. Aviation will play an important part in this program, especially in the countries where ground transportation is virtually non-existent. Ground work for this program is already underway.

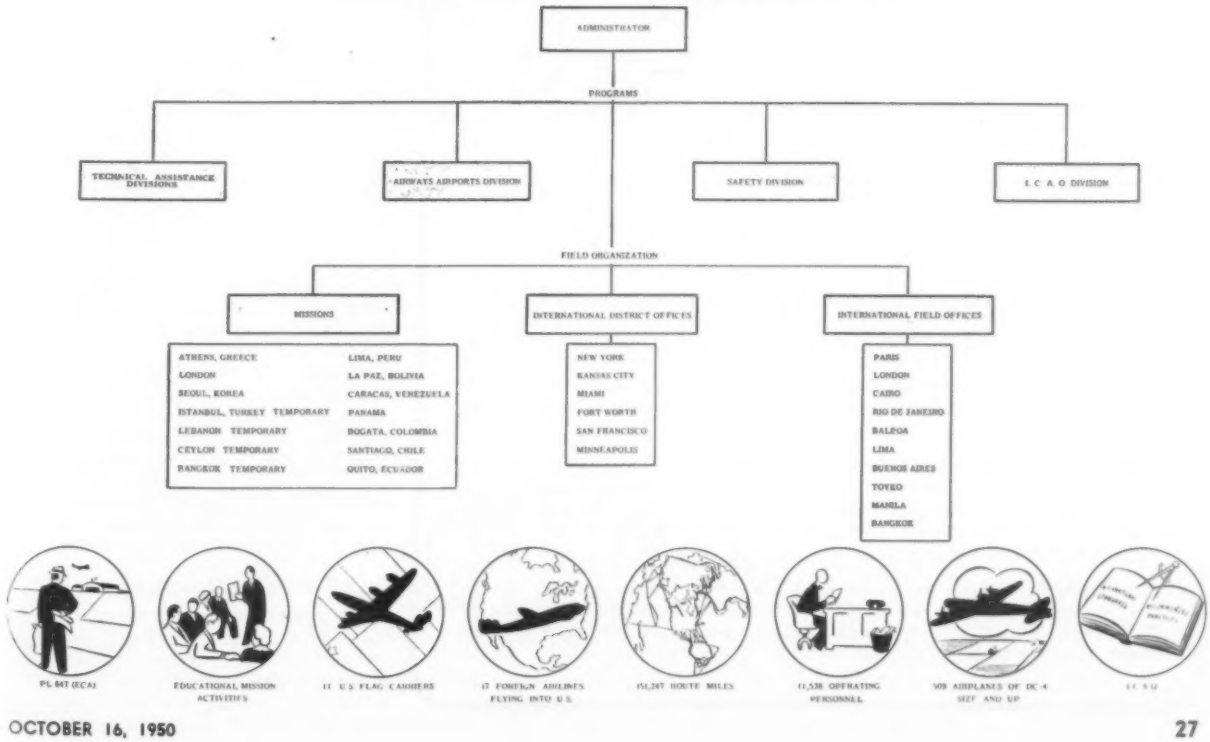
This July marked the first anniversary of this global aviation effort under CAA's International Region. Actually the start was in 1942 when CAA set up shop in Balboa, Canal Zone, but until the international region was established by then CAA Administrator D. W. Rentzel in July of 1949 there was relatively little expansion in the field.

Until then operation of the 11 U. S. international operators in foreign lands were regulated primarily by the CAA region where the airline's major base was located. Primarily responsible for domestic operations and limited by many organizational restrictions, these regions did not always appreciate the specialized problems arising from operation in foreign lands where basic standards varied widely from U. S. practice.

Centralized Activities

In establishing the International Region (Region 10), Rentzel formed a central headquarters through which all international air carrier operations could be funneled. Many CAA respon-

CAA International Region Setup



TECHNICAL NEWS DIGEST

• **Seaboard & Western Airlines has contracted** with Lockheed Aircraft Service International for the conversion of a Douglas C-54A to a C-54E. Conversion includes fire prevention modifications and fuel system changes.

• **A nylon net hammock, 78 inches long** by 28 inches wide, has been designed by engineers at the Air Materiel Command for use in the crew compartment of the Convair B-36. The hammock is intended to supplement the regular sleeping facilities in the aft part of the plane, accessible through a long narrow tunnel. There will be two of the adjustable hammocks in each ship.

• **Douglas Aircraft Co. has contracted with** Aircraft Maintenance International to refurbish two DC-6's which LAI, the Italian airline, used to inaugurate New York-Rome service while awaiting delivery of their own DC-6's.

• **Lockheed Aircraft Service International** is installing Sperry A-12 autopilots, ILS, and related electronic equipment in two Douglas B-26's for the Sperry Gyroscope Co.

• **In the course of 14 "bailouts" at high altitude** to test the Air Force's new automatic parachute opening device, Captain R. V. Wheeler of Watertown, Mass., established a new high-altitude jump record for the USAF when he jumped from 42,449 feet, 2,000 feet above the earlier record. Two others taking part in the test also exceeded the earlier record with jumps from 42,213 feet and 41,586 feet.

• **Robinson Airlines has purchased a Douglas DC-3** from American Airlines. The plane will be completely overhauled by Robinson prior to entry in service.

• **Probable cause of the mid-air collision** of the P-38 operated by Erick Rios Bridoux, the Bolivian pilot, and the Eastern Air Lines DC-4 last November 1 has been listed by CAB as "the execution (by Bridoux) of a straight-in approach without obtaining proper clearance to land and without exercising necessary vigilance."

• **Pan American Airways is expanding its maintenance** and overhaul facilities in Miami at a cost of about $200,000 to handle the additional work load imposed by the acquisition of the American Overseas Airlines' fleet of eight Boeing Stratocruisers, seven Lockheed Constellations and four Douglas DC-4's.

• **The National Bureau of Standards has** released a report on "Stress-Corrosion Resistance of Wrought Magnesium Alloys." The report, available from NBS, U. S. Dept. of Commerce, Washington 25, D. C., covers both sheet and extruded alloys and deals with the suitability of these materials for aircraft use.

• **Aircraft Maintenance International,** N. Y. International Airport, has been designated as an approved "service station" for Westinghouse Electric Corp.'s aircraft alternators, voltage regulators, etc., and will handle all work relating to Westinghouse warranties as well as the sale of spare parts.

• **Chemical engineers at Massachusetts Institute of Technology** are using a microrocket to test engine fuel efficiencies. The microrocket is a tiny liquid-fuel rocket motor which uses two pounds of fuel in the minute during which it produces pressures over 300 pounds and exhausts gases through its nozzle at speeds of about 5,000 mph. During a parallel test of a German V-2 some 12 tons of fuel would be used.

• **The Office of Technical Services of the** U. S. Dept. of Commerce has issued a 20-page report titled "Notes on the Design, Construction and Evaluation of Shielded Rooms." The report, available for 50c per copy, suggests the use of solid sheet metal for shielding and recommends many specific techniques.

• **At its 29th annual convention in San Francisco** the Disabled American Veteran's adopted a resolution recommending that the National Military Establishment construct "one or more seaworthy, twin-hull ships, capable of flight."

sibilities which could only be handled at the airlines' major base remained in the jurisdiction of the domestic regions but many administrative functions were transferred to the international region, bases were established in the foreign capitals to carry the aid and regulation to the operating areas and the mission activities were brought under the guidance of this new region.

To head up this activity Rentzel named A. S. Koch, veteran CAA official, as regional administrator for the international region. In notifying Koch of his duties Rentzel stressed that he should "maintain the highest caliber of personnel in all phases of our international field work."

Grasping the opportunity offered by the many foreign governments that sought U. S. technical aid in the establishment of airports, airways and navigation facilities, Rentzel worked with high State Department officials to form a program of missions which could work in cooperation with embassy personnel in providing this guidance. The fruits of this program are already evident. In rendering this assistance and training the personnel of these countries the CAA advisors have been able to indoctrinate others in matters of U. S. policy.

Separate Functions

On the surface it appears difficult to separate the activities of the missions from the international field offices. Actually the two functions are quite different. International field offices are located at major terminals served by U. S. airlines engaged in foreign operations. They are located at Paris, London, Cairo, Rio de Janeiro, Balboa, Lima, Buenos Aires, Toyko, Manila and Bangkok.

District CAA offices in New York, Kansas City, Miami, Fort Worth, San Francisco, and Minneapolis handle the bulk of routine operational matters involving these airlines since they have their major bases at these points. Once the U. S. operator arrives overseas the CAA agents at the field offices take over. At each of these points all matters pertaining to aircraft airworthiness, operational practice and procedures are monitored by CAA's representatives.

In many ways this CAA activity is very helpful. Foreign governments prefer dealing on an official basis with the U. S. government rather than with an individual airline. Because of this, CAA is able to negotiate agreements between the operators and the governments which would otherwise be difficult, if not impossible.

17 Foreign Internationals

A number of these countries have their own international airlines that serve U. S. cities. There are about 17 airlines in this category. In such cases CAA arranges for the chief pilot or

the SPERRY A-12 Gyropilot*...

is Boeing's and the U. S. Air Force's choice for the B-47B Boeing *Stratojet*, because of its ability . . . already proved on the Boeing *Stratocruiser* . . . to provide smooth, precise *automatic* flying under all flight conditions.

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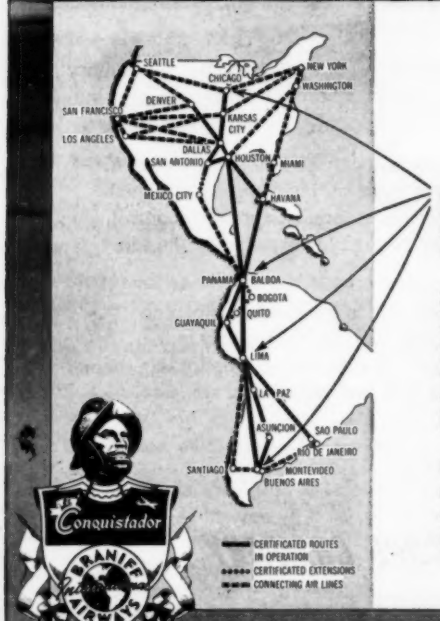

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THE CAA MAN IN THE FOREIGN FIELD . . . AND WHAT HE DOES

1 TECHNOLOGICAL AND SAFETY ASSISTANCE
2 AIRLINE OPERATING ADVISORY SERVICE
3 INTERNATIONAL CERTIFICATION OF AIR-CRAFT AIRMEN AND REPAIR FACILITIES
4 DEVELOPMENT AND PROMOTION OF UNITED STATES TECHNIQUES
5 ADVISORY AND SAFETY ENGINEERING FOR AIRPORT AIRWAYS AND FACILITIES
6 DEVELOPMENT, OPERATION AND REHABILI-TATION OF AVIATION FACILITIES IN NATIONAL INTEREST AREAS
7 REPORTING SERVICES

some similar representative member of the organization to visit the U. S. and be checked out on air traffic control and landing procedures which his company's pilots must adhere to in such operations. He is then responsible to see that the airline's crews are trained accordingly.

It is also the field offices which work with private and commercial owners of U. S.-registered aircraft. Most countries do not permit a foreigner to register an airplane. This is also true of the U. S. where you must be a citizen to register an airplane. Thus U. S. citizens operating planes in these countries for pleasure or business are registered with CAA and the agents follow their activity in a manner similar to that used in the U. S.

Missions, as contrasted with the field offices which are operated to monitor and protect U. S. aviation interests, are established primarily to accomplish a particular task which has been requested by a friendly foreign power. As indicated above, the task in Greece is to help establish airways, in Seoul it was to supervise an ECA contract constructing an airport, in Peru it includes development of airways, airports and navigation facilities while in Venezuela the mission is helping develop regulations and procedures to govern aviation operations.

Groups Visit U. S.

Over 40 countries, including Soviet Russia, have sent representatives to U. S. to study civil aviation and in many cases these visits have reflected directly on the course of aviation activities in those countries. Thus, while specific missions are now active in 14 countries, most countries have supplemented mission activity to some extent by actual visits to this country. Some of these were small delegations, others were sizable groups.

Through these permanent field offices, the missions and the ready acceptance of visitors from foreign countries, the CAA has created a corps of trained technicians in many friendly countries. In shaping aviation activities around U. S. practices and procedures these countries make it safer for U. S. lines to operate abroad. By lending its technical knowledge to the embassies, CAA insures better handling of aviation matters in international treaties without the necessity of the State Department maintaining parallel staffs. And through its ICAO Division, the International Region helps to make U. S. policy international policy.

AMONG THE SUPPLIERS

Edo Corp., College Point, L. I., N. Y., has elected **Noel B. McLean** president, succeeding **Earl D. Osborn**, founder and retiring president of the company, which celebrated its 25th anniversary September 29. McLean joined Edo in 1946 following 17 years with the Bendix Aviation Corp. Osborn will continue his active role in company management and policies in the newly created position of chairman of the board. (AMERICAN AVIATION, Oct. 9).

McLean

. . . **Airborne Accessories Corp.**, Hillside, N. J., has appointed **Gray & Rogers**, Philadelphia, as its advertising agency, effective January 1.

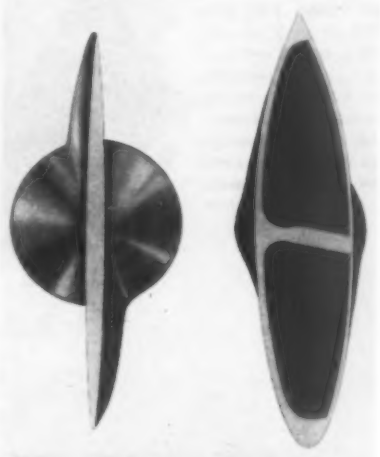
R. C. Swenson, Jr., former materials engineer with the 9th Naval District, has been appointed regional manager of **Purolator Products, Inc.**, in Chicago . . . **Safe Flight Instrument Corp.**, White Plains, N. Y., has appointed **Mel Adams & Associates** of New York its public relations counsel . . . **D. W. Holmes**, former general sales manager, has been elected vice president in charge of sales of the **Parker Appliance Co.**, Cleveland, Ohio . . . **W. Ellwood Jae**, formerly manager of the Aircraft Division of **General Controls Co.**, has joined the **Rhodes Lewis Co.**, Culver City, Calif., as sales manager.

United States Rubber Co. is installing new equipment at Winnsboro, S. C., to increase the production of Ustex high-strength cotton yarn, used for Air Force parachute harness webbing . . . **Jack E. Beane**, vice president of **Dumont Aviation and Supply Co.**, Long Beach, Calif., aircraft hardware and fittings supplier, will be transferred to the company's Kansas City, Mo., office to establish liaison with eastern and mid-western manufacturers.

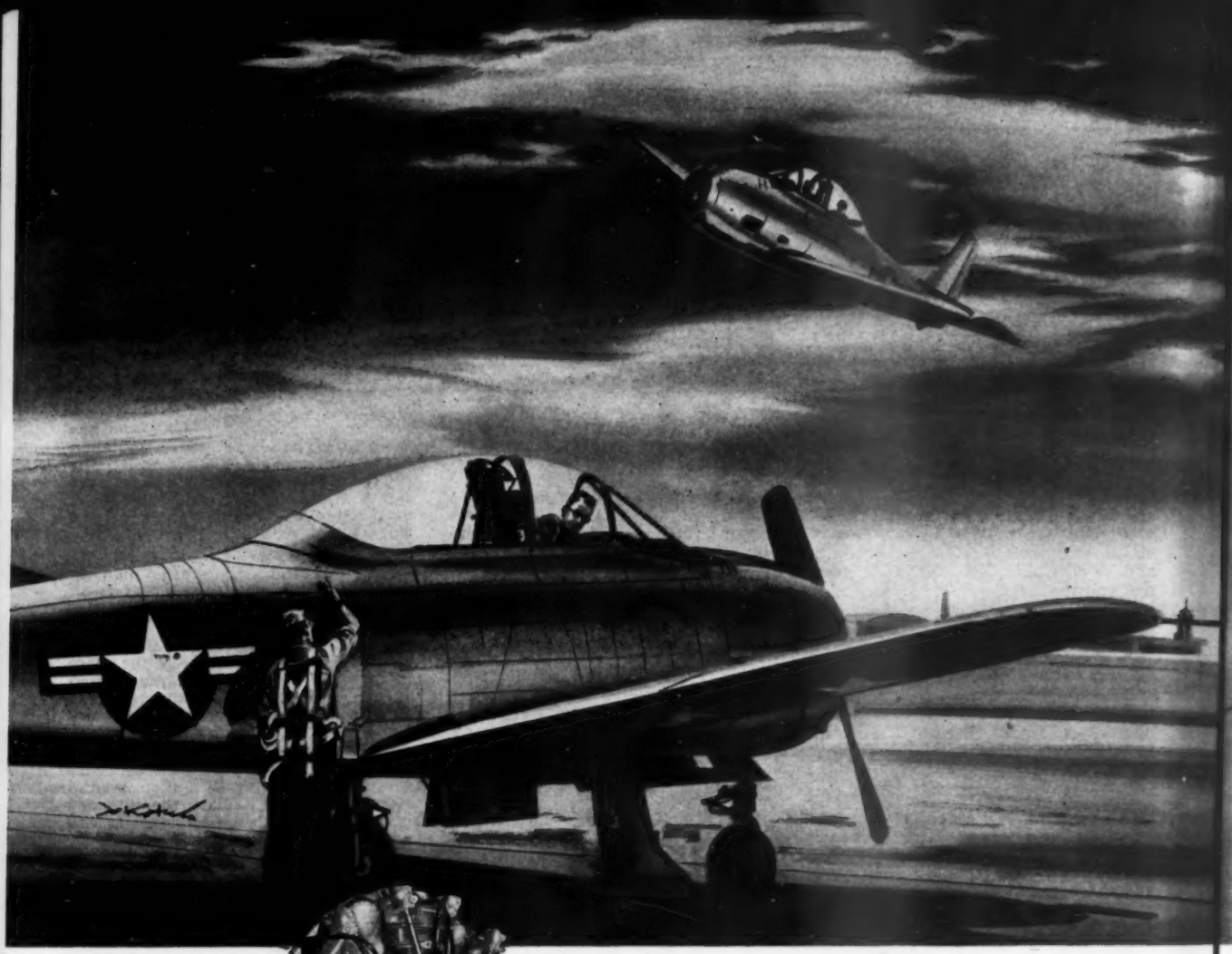
Ardec, Inc., Media, Pa., has been formed to produce precision parts and assemblies on a production basis for the aircraft, electronics, instrument and allied industries, and will also handle special engineering and research problems, including production of prototype and testing units. President of Ardec is **William A. Arnken**, formerly chief engineer of American Precision Products Corp.

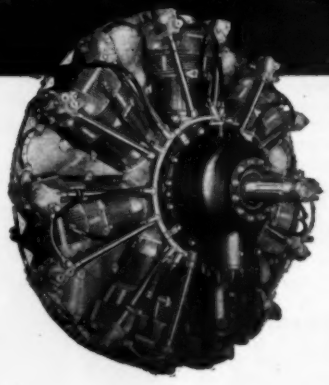
Elmer W. Kreugen, operation manager at **Cleveland Pneumatic Tool Co.**, Cleveland, Ohio, has been elected to the board of directors of the company . . . **Link Aviation, Inc.**, Binghamton, N. Y., has elected three new members to the board of directors: **George L. Hinman, Bert G. Miner** and **E. Allan Williford**, all of Binghamton . . . **Pierce Governor Co.**, Anderson, Ind., manufacturer of precision governors and Sisson automatic chokes, has opened an east coast aviation branch office at 250 Fulton Avenue, Hempstead, N. Y., under the direction of **Robert C. Sellers**, east coast service engineer.

Minneapolis-Honeywell Regulator Co. has designated its assistant director of research, **Raymond O. Anderson**, as company representative in an atomic energy study program being sponsored by the Atomic Energy Commission.



Cross Section—A graphic illustration of how thin pens to propeller blades must be when speeds are increased from their present range to the supersonic range. The blade chord section at the left is that of a supersonic propeller, that at the right, a conventional propeller. Both sections are from a station 20 inches from the butt end of the blade.





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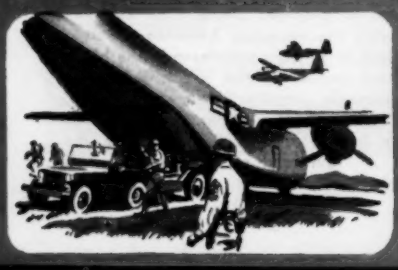
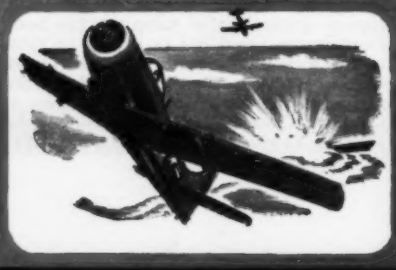
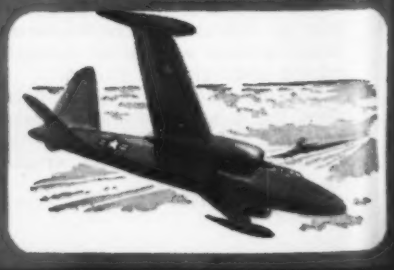
Chase C122 Avitruc

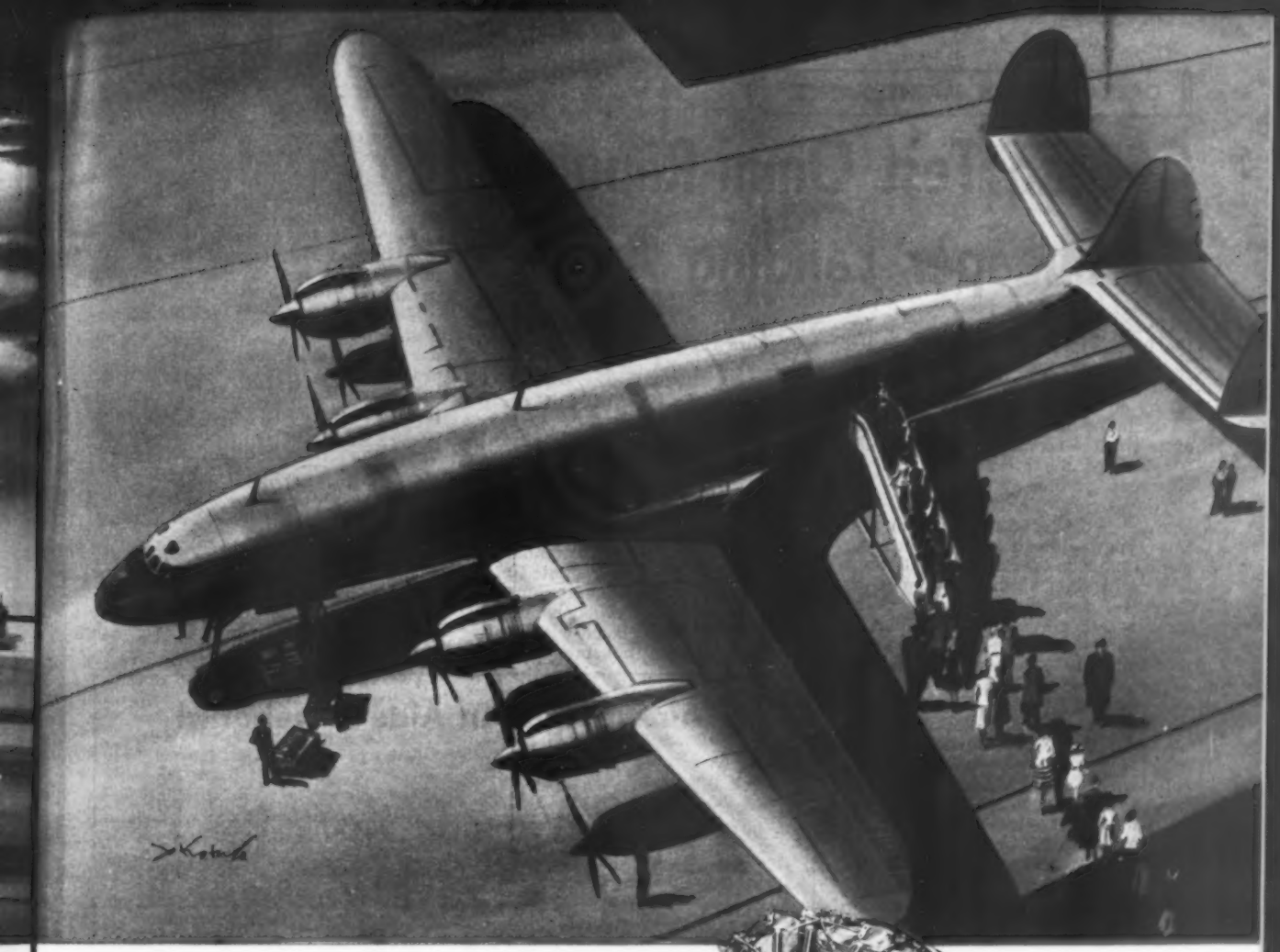


Douglas Skyraider

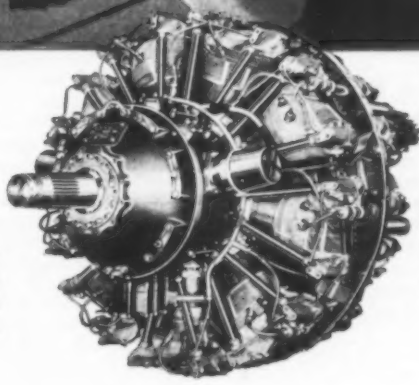


Lockheed P2V-4 Neptune





R Traveler



***POWER PLANT FOR THE TRAVELER** — The Wright Cyclone 18BD . . . rated at 2500 h.p. for takeoff and service-proved on fourteen of the world's leading airlines . . . has increased authorized time between overhauls on the Lockheed Constellation from 600 to 1200 hours.*

▸ The six aircraft shown below do other important jobs. Each has its own special power needs—and Wright engines power them all. The future will bring new needs, and Wright engineering and production teams are ready to handle them.

WRIGHT Aeronautical Corporation, Wood-Ridge, N. J.

A DIVISION OF CURTISS-WRIGHT CORPORATION

Northrop C125 Raider

Martin P5M Marlin

CAA to Test Omni-Ranges As Cheaper Landing Aid

CAA's fiscal 1951 funds provide for the installation of 20 of a projected 75 terminal type omni-directional radio ranges. These aids, off-shoots of the en route omni-range aids, will be installed in the vicinity of moderate-sized airports as landing aids in place of the more expensive instrument landing systems.

To provide factual data on the characteristics of the omni-range in this type application CAA has set aside $25,000 for trial installations and flight tests at their Indianapolis Technical Development Center. These tests will begin almost immediately and will determine the exact arrangement of future installations and to some degree the airports at which they will be made.

Specifically, CAA is seeking information on the charactistics of various antenna arrays when mounted on a counterpoise at ground level, RF power requirements, characteristics of the cone of silence, and whether the station should be installed on the end of the runway, an extension of the runway (perhaps at the point where the outer markers are now located) or at an arbitrary point some distance from the field.

Costs About Half ILS

Need for terminal-type omni, or some equivalent, is emphasized by the difference in cost figures. An average omni-range installation, complete, costs about $63,000, while an average ILS runs about $118,000. Only 171 of the 350 ILS's proposed by RTCA's SC-31 report have been authorized so far, according to C. F. Horne, acting director of CAA's Federal Airways.

"It will certainly be appropriate to inquire critically into the justification of additional installations," Horne told the recent joint meeting of the Institute of Navigation-Radio Technical Commission for Aeronautics-Radio Technical Commission for Marine Services. He stressed that this did not mean no additional installations will be approved but that the traffic potential of many airports does not justify such a large investment of the taxpayers money.

The current $2,533,740 omni-range improvement program, authorized and undertaken with fiscal 1950 funds, will contribute materially to the success of the terminal omni-program. With these funds CAA has been modifying existing omni-stations to provide greater accuracy, an improved and more regular shaped cone of silence, etc.

Tower Height Cut

One of the more prominent changes has been the lowering of the omni-range antenna and counterpoise from the 30-foot tower originally used and design and installation of a 10-foot tower. The counterpoise, the shield like structure below the antenna, has been changed from impregnated plastic Fibreglas to sheet-metal construction and the square wooden antenna shelter has been replaced with a precision-built plastic housing.

These changes, now underway, are expected to improve the azimuthal accuracy of the regular ranges from about plus or minus 3½° to plus or minus two degrees, CAA claims. Lowering of the antenna is expected to have some adverse affect on maximum range but not to a critical nature.

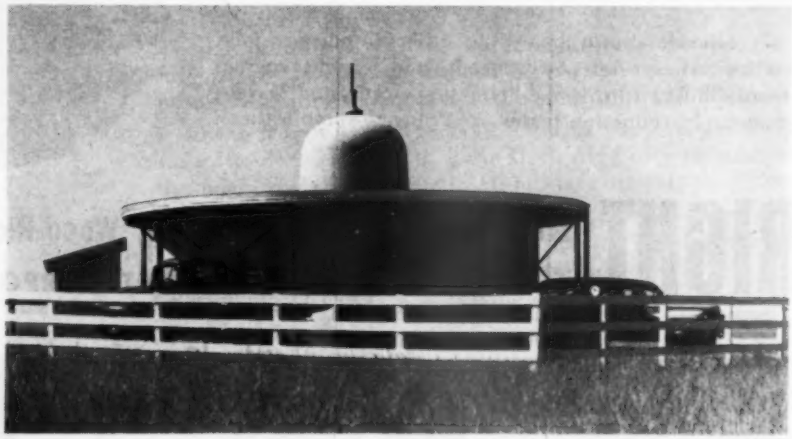
Meanwhile, awaiting results of the Indianapolis tests, CAA's sixth region has worked out changes in the standard omni-range station configuration to correct some of their operational problems with the range. Principal change has been the elimination of the counterpoise and the flush mounting of the antenna on a 4,000-foot mountain top in an area some 200 feet in diameter which was leveled off for the purpose.

This installation, at Ukiah, Calif., is showing considerable promise in the tests using a portable transmitter. CAA is considering using a metal mat under the antenna but so far has not found this necessary.

Air Navigation Aids Scoreboard

	Proposed by SC-31 Report	Commissioned as of Sept. 1, 1950	Authorized Thru Current Fiscal Year
Instrument Landing Systems	350	92	171
High Intensity Approach Light Program	350	5	33
Distance Measuring Equipment	816	Test Only	439
Precision Approach Radar	96	4	28
Airport Surveillance Radar Program	172	4	56
VHF/ADF Equipment Program	228	None	62
Omni Ranges	466	271 *	...
Mechanical Interlock Program	50	5	48

* 294 now operating. In addition, there are 64 commissioned VAR ranges which will ultimately be converted to omni operation.



New Omni-Station—The new look in omni-directional range stations is illustrated in this first photo of the units being installed as part of the $2 million omni-improvement program. Principal features are the lower silhouette, cutting the antenna tower from 30 feet to 10 feet; the new plastic dome replacing the earlier wooden structure; a new counterpoise, the shield like structure below the antenna housing.

ION Award—Commander Thomas D. Davies, USN, is shown receiving the Thomas L. Thurlow Award of the Institute of Navigation "for his original conception of the Pfund Sky Compass and assistance on the research work on this item over a period of years." The sky compass is a navigation aid in polar flying during periods of long twilight. Davies, pilot of the "Truculent Turtle" P2V which holds the world non-stop flight record, was presented the award by Sherman M. Fairchild (right), donor of the award.

TECHNICAL LITERATURE

TURBOSUPERCHARGING: General Electric Co., Schenectady 5, N. Y., has available bulletin GEA-5528 titled "Extra Power thru Turbosupercharging." This four-page bulletin describes the BHI turbosupercharger used on the B-36 and C-99 as well as the BH4 of the Stratocruisers. It outlines improvements accomplished and planned.

CASTING DESIGN: Steel Founders' Society of America, 920 Midland Building, Cleveland 15, Ohio, has available, at 20c each, a 30-page booklet devoted to detailed discussion and illustration of accepted rules of economical and dependable steel casting design. Contains more than 50 photographs, drawings, charts and tables.

SUPPLIES CATALOG: Van Deusen Aircraft Supplies, 2004 Lyndale Ave. South, Minneapolis, Minn., has published a 150-page new catalog carrying an extensive listing of aviation supplies and materials as well as an index of AN-AC-numbered parts and supplies.

CAA REPORTS: CAA's Technical Development and Evaluation Center at Indianapolis, Ind., has available three new TD Reports titled, "Investigation of Fires Originating in Aircraft Vacuum Systems." "Radar Mapping of the Chicago-New York Airway" and "The Load Transmission Test for Flexible Paving and Base Courses, Part I, A Description of the Testing Apparatus, Operating Methods and Anticipated Uses of Test Data."

METALS BOOKLET: Fansteel Metallurgical Corp., North Chicago, Ill., has available a 24-page illustrated booklet on tungsten and molybdenum. It carries text, illustrations and tables providing data on metallurgy, physical, mechanical and chemical properties of these metals as well as fabricating techniques, applications, etc.

Extra Section

By William D. Perreault

HOW BIG will airplanes get? Recently **Charlie Froesch,** EAL's chief engineer, suggested we might "take a leaf from the operating experience of the motor bus industry." He noted that in 25 years the bus lines had ranged equipment sizes from those carrying 15 passengers to as high as 70 passengers. Finally they stabilized, with minor exceptions, to 35-40 passenger capacity. Froesch indicated that the 14-80 passenger arrangements in aircraft today will probably stabilize in the future. He felt that 36-40 passenger units for feeder services and 70-80 passenger units for limited and express service would prove economical sizes.

•

Reader B. H. Young, 11-year veteran with Panagra and now professor of airline engineering in Brazil's Institute of Technical Aeronautics, sends us an interesting true story of maintenance problems in Brazil. It seems that one operator had mechanical trouble with his DC-3 at an outlying airport. The mechanic, as he removed the necessary parts, laid them on a clean newspaper in the order in which they were removed. Then off to lunch. On returning he was just in time to see an ema, a bird which Young says "can run like hell and will kick like a bay steer in a cornfield when caught," swallowing the last bolt and looking around for more. After a mad chase by the airline staff the bird was caught, died (fright or humiliation) and was duly operated on. The parts were retrieved and reinstalled.

•

In a recent talk before the National Electronics Conference **Wayne Coy,** chairman of FCC, expressed his admiration of achievements by electronic scientists and related a poem published in the *New York Times* before the beginning of the 20th century as an indication that we should "never laugh at a long hair scientific crank when he sits down to perform a miracle." In this day of electronic specialization in aviation it bears repeating:

"A long haired scientific crank once lived on Murray Hill,
The march of science failed to march with his gigantic will.
And his very last invention, which increased his fame by half,
Was the poly-chromo-tele-panto-photo-phonograph.

"This instrument so wonderful was fitted by degrees
With a sound board, a diagram and many rows of keys,
Besides electric wiring and complete harmonic staff
As a poly-chromo-tele-panto-photo-phonograph.

"The professor called upon me and in manner shrewd and keen
Explained the salient features of his intricate machine.
He seemed so much in earnest that I did not dare to laugh
At his poly-chromo-tele-panto-photo-phonograph.

"We set to work next morning to test the new machine,
Having first secured connection with the cable submarine.
And we studied Western Europe from the Tiber to the Taff
Through his poly-chromo-tele-panto-photo-phonograph."

•

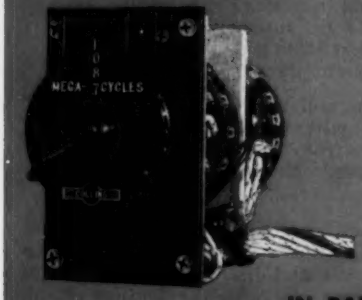
Shortly after Capital Airlines chartered two cargo model Douglas C-54's to the USAF for the Pacific air lift it lost the service of another C-54 through an explosion and fire. The integral fuel tanks were being repaired. The access plates in the bottom of the tank had been removed and the ducting from the ground blower had been connected to the tank to ventilate it prior to starting work. There was a short delay between connecting the blower duct and starting the blower. Gas fumes from the tank sank down filling the duct with explosive fumes. A moment later the blower motor was started, a spark ignited the fumes which flashed back into the tank, exploded and burned. Object lesson: Start the blower before connecting it to the aircraft.

TWA buys Collins vhf transmitters

for its entire Martin 4-0-4 fleet

Collins shockmounted 17L-2 transmitter

Collins 314Y-1 remote control unit



By its purchase of 40 Martin 4-0-4's, which will begin to go into domestic service next spring, Trans World Airlines follows its traditionally vigorous course of progress.

Also reflecting TWA's policy of providing the most efficient air transportation that modern facilities permit, is the fact that the radio complement of every one of the new 4-0-4's will include a Collins 17L-2 vhf transmitter.

TWA engineers made a careful study of available vhf transmitting equipment. They knew that vhf communication is line-of-sight communication, noise-free within its range, but not applicable over great distances. They chose the 17L-2 largely because it had the best size-weight to power ratio.

The 17L-2, small enough to be housed in a standard ½ATR size case, weighs only 19 pounds. Yet it has a power output of eight watts or better into a 52-ohm load, thus assuring that transmissions will be received and acknowledged at the busiest air terminals.

In addition, it provides fingertip remote frequency control of all 180 channels reserved for aircraft communication in the vhf band. The 314Y-1 remote control unit can be located wherever it is most convenient.

All airline operations and communications people should be fully informed about this highly developed transmitter. A descriptive bulletin will be sent you on request.

IN RADIO COMMUNICATIONS, IT'S . . .

COLLINS

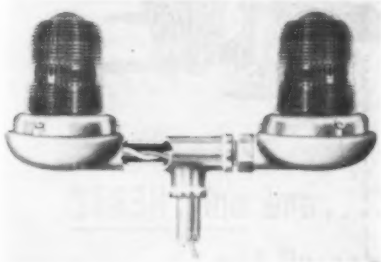
COLLINS RADIO COMPANY, Cedar Rapids, Iowa

11 West 42nd Street, NEW YORK 18 **27 West Olive Avenue, BURBANK**

NEW PRODUCTS

Obstruction Light

Dave Rumph Co., Box 4178, Fort Worth, Texas, is manufacturing a new heavy-duty marker obstruction light marketed under the trade name 'Telico.' Designed for use on upright conduits or masts, the 'Telico' units incorporate standard ¾" internal pipe conduit



threads in the side of the light base. It weighs less than four pounds, is waterproof and corrosion resistant, according to the manufacturer. Holes for condensation drainage are provided. Lens is a special frensal type. Meets CAA, Air Force and Navy specifications. Designed for standard 100A21 type marker lamp which screws into the units porcelain lamp socket.

Rolatape

Rolatape, Inc., 1415 14th St., Santa Monica, Calif., has announced a lightweight rolatape which makes it convenient and easy to make measurements from a few inches to almost unlimited lengths vertically, horizontally or around curves. As the tape is rolled along on the collapsible handle provided, a recessed tape on the rim of the wheel indicates measurement in fractions of inches up to two feet, an automatic counter records measurements in feet and in cycles of 100 feet. Each time it passes two feet an audible click is made and for every 100 feet a bell rings. Handle and tape fold into eight inch size. Retail price $17.50.

Carbon Remover

Fine Organics, Inc., Aviation Chemicals Div., 211 E. 19th St., New York 3, N. Y., is marketing a cold soak carbon remover for cleaning internal piston engine parts. The new cleaner, Formula CR 121, supersedes the company's Formula CR 103. It is a balanced compound, containing chlorinated solvents, hydrocarbons, cresylic acid, potash soap and suitable inhibitors meeting the requirements of Air Force Specification No. 20038. Known as Stratocarb C. Formula CR 121 meets government specifications AAF 20038-2, USN 51-C-55B and USA 4-1120-2-1. Packaged in 53 and 5-gallon drums with 100% active material, water to be added by purchaser, or in 5-gallon drums containing 4 gallons including water seal and parts strainer.

Soldering Gun

Weller Electric Corp., Easton, Pa., is marketing a new soldering gun which features dual heat (100/135 watts), five-second heating time, and twin spotlights which flood the work object with light to eliminate shadows. A trigger-switch

control is used for greater convenience. Note the over/under terminal design. Descriptive catalog on the Model WD-135 available from the manufacturer.

Vinyl Plastic Covering

United State Rubber Co., Rockefeller Center, New York 20, N. Y., has announced the production of Naugahyde, a vinyl plastic covering for use as a facing for hard surfaces. A smooth, fine texture grain yet resistant to abrasion, scuffing and gouging, Naugahyde has a tough backing which gives it stability in hanging. It can be applied with conventional adhesives on most hard surfaces. Washable with soap and water. Available in 12 colors including seven pastel shades and five deep tones, in 30-yard rolls 50 inches wide.

Shock Mounts

Robinson Aviation, Inc., Teterboro, N. J., has introduced a new cup-type all-metal, all-weather mount for aircraft and industrial use. Available in four sizes: 2½-6 lbs., 5½-12½ lbs., 10-20 lbs. and 18-40 lbs. Of all-metal design, the series 7002 mounts use Met-L-Flex, the all-steel, resilient material developed by Robinson. Manufacturer claims the unit exceeds government specifications for vibration isolation efficiency. Overload feature provides protection against shock loads from landing shock, gunfire recoil, etc. Adequate to meet the 30 "G" drop-test requirements of An-E-19.

Brightness Control

Hevi Duty Electric Co., Milwaukee 1, Wisc., is marketing a 4-KW, static-type, constant-current regulator for a primary of 250/240/230/220 volts, 60 cycles and a secondary of 6.6 amperes with taps for 100%, 30% and 10% brightness. Provides electrically operated and interlocked relays mounted on one easily accessible panel. It operates in 4 to 6 cycles to reduce open circuit voltage stress on cables. Housed in an 18¼ x 15¼ x 31½ inch high gray steel cabinet. Another model, the BCR-813 is available or series taxiway lighting. Copies of bulletin CCR-506 available on request.

Control Panel

Westinghouse Electric Corp., Box 2099, Pittsburgh 30, Pa., has introduced an electronic temperature control panel for aircraft. The type AVE-105 is designed to control temperature within plus or minus five degrees F. of the nominal setting adjustable from 90 to 130°. It is intended for controlling window temperature in deicing and defogging installations but can be applied to parallel applications. Operating on a signal from a resistance bridge, one arm of which is a sensing element, this unit amplifies the signal and operates a control relay which governs the heater supply system. Control power is supplied at 115 volts, 400-1,000 cycles AC. The relay operates at 28 volts.

Felt Point Pen

Marsh Stencil Machine Co., Belleville, Ill., is marketing a felt-point pen which uses fast-drying ink in black or colors, to mark paper, wood, cartons, metal, glass or cellophone surfaces, wet or dry. The ink is automatically fed to the

point with one loading enough to make a 1,000-foot-long, 1/16-inch-wide stripe. Felts are available in three sizes for marking fine, medium or broad lines. This fountain-pen size marker is made with aluminum barrel, nose and valve parts housing the felt points. A set containing one pen, one ounce can of black T-ink and two extra felt points sells at $3.25.

Surely your air line can use this added revenue!

HERTZ... and only HERTZ can offer all the advantages of the

PLANE-AUTO TRAVEL PLAN

Driving their own cars, traveling between cities, Americans covered 570 billion passenger miles during 1949! A large number of these drove long distances not because they wished to, but simply because they wanted and needed cars when they reached their destinations.

In a short time thousands of car owners have been diverted to plane travel from long distance driving by the Plane-Auto Travel Plan . . . which is a plan of co-operation by the Hertz Driv-Ur-Self System and air lines. And no wonder, when you realize that now travelers can reserve a new car from Hertz before they leave home in over 450 cities throughout the United States, Hawaii, Cuba, Great Britain and Canada, and be sure that the car will meet them at the airport, if desired, filled with gas and oil, properly insured, all ready to go! *And at surprising low rates.*

Hertz . . . and *only Hertz* . . . tells the traveling public the advantages of the Plane-Auto Travel Plan thru national advertising in such leading magazines as the Saturday Evening Post, Life, Look, Holiday, Time, Newsweek, and U. S. News & World Report.

Are you telling your customers about this great traffic-building plan? At every counter, have you a counter display? If not, send for them now, they are free, they will help you to sell your passengers, and render a worth-while service. That the great traveling public wants this service has been proved . . . proved by ever-increasing interest, ever-increasing use of the Plane-Auto Travel Plan.

Hertz Services At Airports

So successful has the Plane-Auto Travel Plan proved that Hertz has opened a score of auxiliary stations at airports and will open others as rapidly as required. Remember, you can reserve cars from Hertz—and *only* Hertz—in more than 450 cities including virtually all pleasure resort areas, throughout the U. S., Hawaii, Cuba, Great Britain and Canada! So, to increase your air line revenue, advertise, promote, sell the Plane-Auto Travel Plan. Write for further information, or materials you may need. Get your share of this growing business.

HERTZ *Driv-Ur-Self* SYSTEM

218 South Wabash Avenue
Chicago 4, Illinois

WESTERN URGES IDENTIFICATION

ATA Seal Proposed for Scheduled Airlines

By KEITH SAUNDERS

ARTHUR F. KELLY, vice president-sales of Western Air Lines, told the Air Traffic Conference of the Air Transport Association, at its fall meeting in San Francisco October 12, how the certified airlines might once and for all clear up the confusion that exists in the minds of non-informed travelers as to what airlines are certificated and what ones are non-scheduled.

Kelly's proposal, that the carriers affiliated with ATA adopt a seal that would readily distinguish their advertising, their ticket offices and their aircraft from those of the nonskeds, was particularly interesting in view of the fact that the non-skeds' trade organization—the Aircoach Transport Association—had just come out with its own "Seal of Approval" for use by its members.

Thus, right now might be a most appropriate time for the scheduled lines to come out with an identifying seal that would clearly set them apart from the non-skeds in the public eye.

Stop-Gap Remedy

Western didn't suggest the seal as a permanent remedy. It was put forth as a "simple, stop-gap step" that all the certificated airlines could take immediately to build influence with buyers of air transportation pending the development of a broad educational campaign to explain to travelers the differences between scheduled and non-scheduled airline operations in terms of their own safety, convenience and pocketbook.

"We have to convince Daniel Doakes that he's better off to spend $110 for a New York-Los Angeles flight on the scheduled air coach of a certificated airline than to spend $88 for a non-sked 'luxury liner,'" declared Kelly.

It recognized, however, that this is too big a job for an individual airline and should be done for the industry by the Air Transport Association. But even after the airlines have agreed on the need for such a campaign and have agreed to underwrite its cost, WAL continued, months must pass before the individual advertisements can be published in the national magazines.

Meanwhile, the non-skeds would continue to convert thousands of new flyers every month and to sell themselves as efficient, low-profit pioneers, it was argued, so a stop-gap measure is needed. And this measure would be adoption of an identifying seal for use by ATA members in all printed advertising in much the same manner as the *Good Housekeeping seal* is used to endorse products as having met a high standard of excellence.

In proposing adoption of a seal, Western said it should be simple and clean-cut, emphasizing some such phrase as "A Certificated, Scheduled Airline," because if all the emphasis went to the words "Air Transport Association" the public might confuse the seal with the one of the non-skeds.

Use of the seal was suggested in newspaper and magazine advertisements, on letterheads, in direct-mail material, on stickers, in timetables, as postage-meter indicia, on the exterior of planes, and on ATA membership certificates to be displayed in ticket offices and windows of member airlines.

Ideally, WAL said, a national magazine campaign by the ATA should introduce the seal to the public, telling what it means and linking the passenger's welfare with the operational differences between certificated and non-scheduled carriers.

No Confusion

The other seal—the one adopted by the Aircoach Transport Association—fortunately does not feature the initials A.T.A. It features the word AIR COACH. Thus, if the Air Transport Association's seal were to feature its initials, there should be no room for confusion.

Purpose of the aircoach group's seal, ostensibly, was to convince the public that its non-sked members are fully as respectable and as safe as the certificated, scheduled carriers. For the Association proclaimed that permission to use this emblem of respectability would be granted only to car-

UAL Ticket Office—Jack Misselhorn, United Air Lines district sales manager in New York, shows the company's new ticket office in Rockefeller Center to Margaret Arlen, Columbia Broadcasting System women's commentator. Office was set up as a convenience to air travelers located in mid-Manhattan.

riers agreeing to abide by a new code of ethics designed to remove misrepresentation from advertisements of large non-scheduled carriers.

This code, a likely tip-off to the kinds of abuses of which some of the non-skeds or their ticket agents have been guilty, stipulates that:

1. No agency or carrier shall advertise a tariff which is not actually in use.

2. No agency shall advertise a schedule or intimate that any carrier which they represent or on which they book passengers are scheduled airlines.

3. No agency shall offer free transportation to airports.

4. No agency may misrepresent the type of insurance carried on all airlines.

5. Advertisements must note that all fares are plus tax, in readable type.

6. Advertisements placed by agencies must openly make mention of the fact that they are agents and not carriers.

7. Advertisements must note that all flights are irregular.

8. No agency may make derogatory remarks about another Association member agent or carrier in person or in writing.

9. If any agency uses a name which openly implies a type of flying equipment which they are not selling, they must specify the type of flights they are selling or must change their name so that it no longer can be considered misrepresentation.

10. If one ad carries tariffs on several types of equipment, then that ad must specify which tariff covers which type of equipment. This shall apply to both copy and artwork.

11. The above rules shall be applied to personal contacts as well as advertising.

12. The above rules shall pertain to all types of advertising, radio, newspapers, magazines, folders, etc.

13. Agencies must fulfill all promises made in advertisements or in personal contact.

14. It shall be mandatory for an agency to submit his advertising for approval to the Association officers assigned to this duty.

It seemed a good enough code, if it could be enforced. On the point of penalties for violations, the code said only that any agency or member of the Association who breaks any of the rules "shall be subject to a fine and/or suspension." This apparently could mean much or mean nothing.

Cargo Door—Boeing's newest C-97A's have an upward-opening cargo loading door on the right side of the upper deck. The door, which can be used for cargo or personnel loading is hydraulically operated and brings the total number of doors into the cargo areas to four. In addition to the clam-shell type doors in the underside of the tail there are doors at the front and rear of the plane on the lower deck.

CAB CALENDAR

Oct. 16—(Docket 4228 et al) Hearing in Philadelphia Service Suspension Case. Tentative. Examiner Herbert K. Bryan.

Oct. 16—(Docket 4161) Hearing resumed in Trans American Airways' Enforcement Proceeding. 10 a. m., Room E-214, Temporary Bldg. 5, Washington, D. C.

Oct. 16—(Docket 3660) Prehearing conference in Chicago-Washington, D. C. Service Investigation. 10 a. m., Room 4823, Commerce Building, Washington, D. C. Examiner Ralph L. Wiser.

Oct. 17—(Draft Release 43-A) Oral argument before the Board on proposed amendment of Economic Regulation Part 291. 10 a. m., Room 5042, Commerce Building, Washington, D. C.

Oct. 17—(Docket 4677) Hearing in Ozark Airlines' Mail Rate Case. 10 a. m., Room 1011, Temporary Building 5, Washington, D. C.

Oct. 23—(Docket 4151) Prehearing conference in New England Air Express Revocation Proceeding. 10 a. m., Room E-214, Temporary Building 5, Washington, D. C. Examiner J. Earl Cox.

Oct. 25—(Docket 3851) Hearing on Trans World Airlines' application for removal of restriction on Route 2 to permit Santa Fe-Albuquerque service. Tentative. Examiner Joseph L. Fitzmaurice.

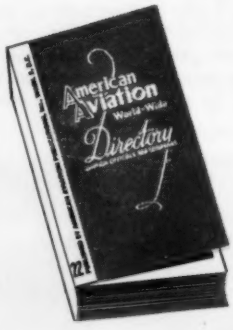
Oct. 25—(Docket 4505) Hearing in CAB investigation of Eastern Air Lines' Miami-San Juan Coach Fares. 10 a. m., Room E-214, Temporary Building 5, Washington, D. C. Examiner Paul N. Pfeiffer. Postponed from October 4.

Oct. 30—(Docket 3605 et al.) Hearing in Lehman Brothers et al. Interlocking Relationships Case. Tentative.

Nov. 7—(Docket 4364) Hearing on applications of Compania Dominicana De Aviacion, C. Por A. for Miami/San Juan-Ciudad Trujillo Foreign Carrier Permit. Tentative. Examiner Curtis C. Henderson.

Nov. 15—(Docket 3800) Hearing on application of Los Angeles Airways for renewal and amendment of its certificate. Tentative. Examiner Ferdinand D. Moran.

Nov. 20—(Docket 3854) Hearing in Modern Air Transport Exemption Case. Tentative. Examiner William J. Madden.



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Please send.....copies of the new 1950 Fall-Winter edition of American Aviation Directory.

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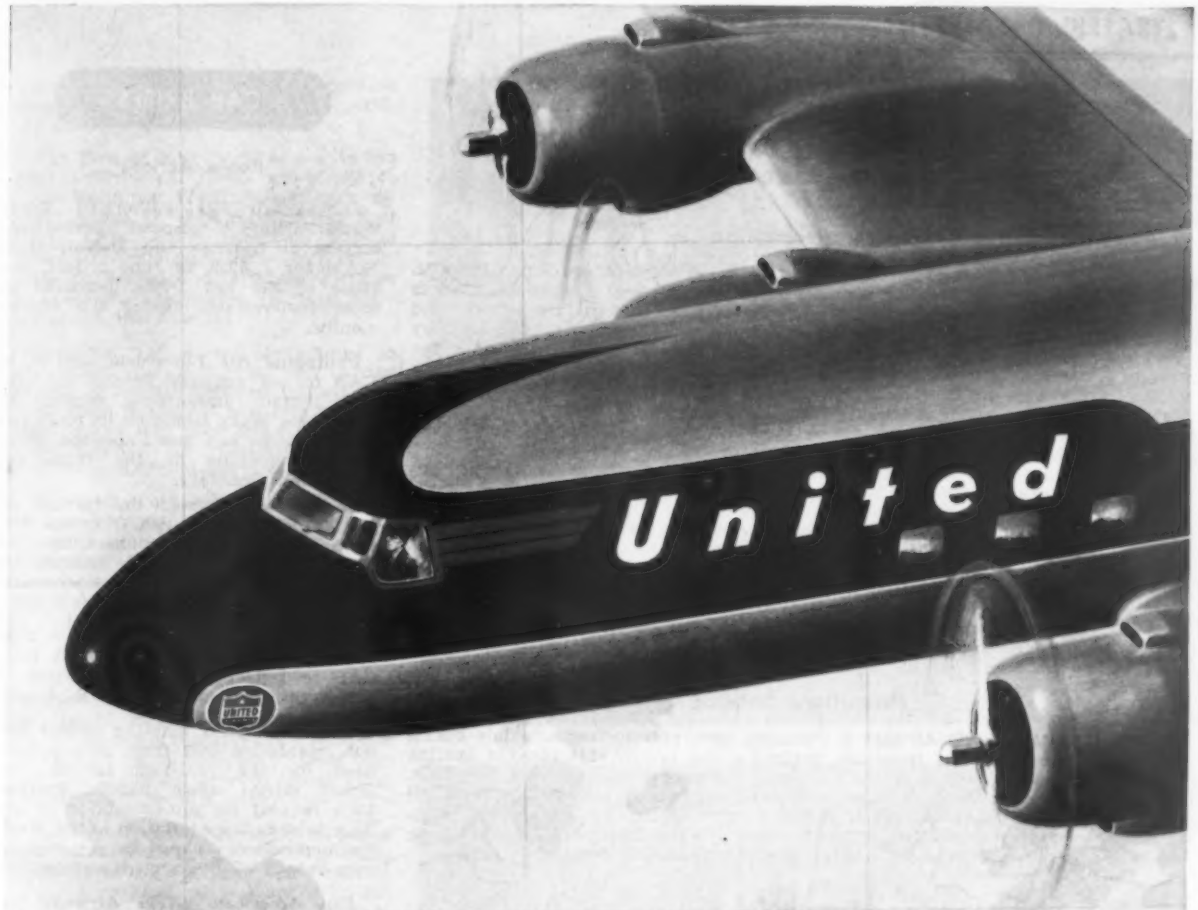


"Good afternoon, *ladies and gentlemen. This is the Captain speaking. If you'll look off to the right you'll see Yellowstone National Park. Today we're flying far north of our normal, mid-continent route to the coast. Tomorrow we might fly to the south. No one section has sunshine every day . . . no airline can claim better weather. United doesn't have to stay on one narrow route; we can choose from radio-marked airways. We use the range and reserve power of the DC-6 Mainliner 300 to fly around the weather. We take the route that's best at flight time to get you there on schedule."*

Comments like this, over public address systems of United's DC-6 Mainliner 300s, are typical of the friendly, *personal* service when you FLY UNITED! Best of all, the speed of United Mainliner travel with meals included and no tips aloft usually costs less than standard 1st class rail plus lower berth, tips, and meals en route! For reservations call or write United or an Authorized Travel Agent.

Passengers • Mail • Express • Freight • Parcel Post
THE NATION'S NUMBER 1 COAST-TO-COAST AIRLINE

UNITED AIR LINES

Over the Counter

Sales Promotion

CAPITAL AIRLINES has started its first national advertising campaign, with attractive ads in *Saturday Evening Post, Time* and *New Yorker* . . .**TWA** is out with direct-mail promotion on its new London and Frankfurt service, and is also distributing a folder on Mediterranean air cruises . . . Out-of-the-ordinary direct mail promotion by **British Overseas Airways Corp.** involves use of a reprint of a cartoon from *Saturday Evening Post*. Cartoon shows an Englishman holding a gun on an American and remarking: "Sorry, old chap—I'm from England and we're terribly short of dollars, you know." Attached to the cartoon is a BOAC note: "We haven't come to this yet. Our exclusive Stratocruiser service to Glasgow and London will take care of both of us."

Western Air Lines has negotiated a tie-in with Town House in Los Angeles for a package deal on football games. For one price, football fans get round-trip ticket to Los Angeles (either first-class or coach), two nights at the hotel, limousine service to and from the stadium, and special service in obtaining tickets to the game. Sample: from San Francisco, $31.40 coach, $51.50 first-class . . . **American Airlines** has made a tie-in arrangement with Slender-Lee Skirt Co., Philadelphia, to provide one-day delivery of company's new line of rayon gaberdine skirts to retailers east of the Mississippi, and two-day delivery elsewhere. AA will cooperate with Slender-Lee retailers in cities it serves by arranging displays, fashion shows, etc.

Passenger Service

PAN AMERICAN World Airways is installing new, easy-to-read schedule boards in all Latin American terminals, replacing the present blackboards bearing flight information written in chalk. The new boards, six and one-half feet long, have interchangeable block letters and numerals, which are visible from all parts of the waiting room. Each board is surmounted by an electric clock. Information shown includes trip number, where it's from, scheduled arrival time, actual arrival time, destination and scheduled and actual departure times.

Timetables

A POCKET timetable showing condensed schedules between principal points on its system is being distributed by **American Airlines,** and holds promise of reducing the company's overall timetable cost. AA will probably need several variations to cover the country. The one we have examined, for example, can be used by all stations between Boston and Richmond. In addition to listing commuter flights between Washington, Philadelphia, New York, Boston and nearby cities, the timetable, on the reverse side, also lists schedules between other important cities as well as one-way and round-trip fares.

And, says American, it is the first timetable to show not only the effective date of the schedules but also the last date on which they're effective. Credit for the timetable goes to **Herb Ford,** AA's Washington sales manager, and **Jack Colthar,** of schedules and tariffs division, New York. Ford explains that cost is considerably less than complete systemwide timetable. Passengers are finding that it meets their needs, and reception has been good.

Sales Offices

AMERICAN Airlines' Washington administrative, public relations and sales offices are now located in Suite 400 at 918 16th St., NW. Ticket offices remain in Willard and Statler Hotels . . . **Capital Airlines** will shortly open a new ticket office at 14th and F Sts., one of the busiest corners in Washington. **Casey Britt,** district sales manager, will have his office there . . . **Northeast Airlines** is sharing a ticket office with **National Airlines** at 37 Wall St., New York City . . . **British Overseas Airways Corp.** has opened its new passenger and air cargo office at 342 Madison Ave., New York.

Traffic and Services

PAN AMERICAN World Airways started non-stop Constellation service between New York and Caracas, Venezuela, on Oct. 15 with four round-trips weekly. PAA's El Presidente Boeing Stratocruiser service New York-Buenos Aires has been increased from two to three-weekly . . . **Mid-Continent Airlines** has started service over Chicago/Milwaukee-Sioux City segment of feeder route awarded it by CAB in Parks investigation case. Two daily DC-3 trips are flown via Waterloo, Dubuque and Rockford . . . **Wisconsin Central Airlines** has resumed service to Clintonville, Wis. . . . **Resort Airlines** has suspended service at Kingston-Montego Bay, Jamaica, until Dec. 1.

ERIC BRAMLEY

CAB BRIEFS

Route Actions

The Board has authorized **Trans World Airlines** to suspend international service at Chicago and Detroit from November 1, 1950, to June 1, 1951, because of the low traffic potential at those co-terminals during the winter months.

Philippine Air Lines has applied to CAB for an amended foreign air carrier permit authorizing service to Tokyo and Wake Island on its route between Manila and San Francisco. Present intermediates on the route are Guam and Honolulu.

The Board amended the foreign air carrier permit of **British Overseas Airways Corp.** to permit operations between New York and the Bahama Islands on flights originating or terminating at Prestwick or London.

TACA, S. A., has requested a reissued foreign air carrier permit from CAB to reflect a change in name to **TACA International Airlines, S. A.**

On the grounds that the carrier had not established that there is a present need for the proposed service, the Board turned down **Riddle Aviation Co.'s** request for an exemption to engage in such transportation in the Western hemisphere as may be required by any branch of the armed services.

Pan American World Airways' authority to suspend service at Shanghai, China, slated to expire this month, has been extended by CAB "until such time as the resumption of PAA's service to said city is possible."

Mid-Continent Airlines has applied for extension of Route 26 from Tulsa to Houston, paralleling present temporary Route 80, and has asked consolidation of the application with pending proceedings involving permanent status for Route 80.

Mid-Continent Airlines was authorized by the Board to suspend service temporarily at Elgin and Freeport, Ill., and Fort Dodge, Iowa, pending availability of adequate airports. These points are on its new Chicago-Sioux City segment.

The Board has authorized **Frontier Airlines** to omit service to Las Cruces, N. M., on night flights pending installation of radio, navigational and lighting facilities.

Piedmont Airlines has requested a change in service pattern to permit an additional round-trip flight on its Cincinnati-Norfolk route, via Charleston, Roanoke and Richmond.

The Board has stated that the international situation will not delay disposition of the pending individual exemption applications of 72 non-scheduled air carriers. Of the original 92 applicants, five have been granted two-year exemptions to date and applica-

tions of 19 others have been denied or dismissed. Four of the latter are operating pending action on appeals.

The Port of New York Authority has filed a statement of 25 exceptions to CAB Examiner Warren E. Baker's report in the U. S.-Europe-Middle East Cargo Case. Chief exception was to Baker's recommended denial of a certificate to **Seaboard & Western Airline's** to operate a certificated all-cargo service across the Atlantic.

Aerovias "Q", S. A., has applied to the Board for a foreign air carrier permit to operate between Havana and West Palm Beach. It now flies between Havana and Key West and has applications pending for Havana-New York and Havana-Miami services.

Regina Cargo Lines, a large irregular carrier, obtained a temporary injunction preventing CAB from suspending its air carrier certificate. Board ordered the suspension following expiration of the usual 60-day suspension period.

General

The CAB threatened to suspend the letters of registration of two domestic air freight forwarders—**All-Air Freight Co.** of New York and **Twin Cities Air Service Co.** of Minneapolis—unless they met the Board's quarterly report filing requirements by this week.

Railway Express Agency has been granted an additional three months to submit a new air express agreement to CAB. New deadline is January 1. Interim reports must be filed between now and then.

CAB's investigation of **New England Air Express'** suspended $59 one-way transcontinental fare was dismissed when the carrier voluntarily cancelled the fare.

Approval of an **International Air Transport Association** regulation requiring Conference approval before general sales agents of non-IATA carriers can serve as IATA sales agents has been recommended by CAB Examiner Herbert K. Bryan.

Heacock Named President Of Non-Sked Association

Amos Heacock, president of Air Transport Associates, Seattle, has been elected president of the Aircoach Transport Association, with offices in Washington. Other officers elected by the non-scheduled group are:

Capt. I. E. Hermann, president of Great Lakes Airlines, Los Angeles, first vice president; John Belding, president of Continental Charters, Miami, second vice president; H. B. Robinson, president of Peninsular Air Transport, secretary; and Cyrus H. Smith, president of Modern Air Transport, treasurer.

PAN AMERICAN-GRACE Airways likes to regard the Fiesta Lounge on its DC-6 "El Interamericano" flights between Miami and Buenos Aires as "the last word in air travel comfort," and these pictures lend visible support to the claim.

Located just forward of the galley, the lounge is of living room dimensions, seats eight passengers in comfort, and is equipped with a bar, cushioned divans and seats, reading lamps, gaily colored drapes and other appurtenances.

A special service offered passengers on the "El Interamericano" flights is the provision of Ansco Speedex cameras with which passengers may take pictures within the lounge and from the plane windows in flight. Film can be purchased from the cabin attendant, who also is trained to instruct passengers in use of the camera under varying light conditions.

There is a surcharge of $5.00 from Miami to Lima and $10.00 from Miami to Santiago and Buenos Aires on the Fiesta Lounge flights, and Panagra thinks it it well worth the price.

We Print
TRANSPORTATION TICKETS
AND NOTHING ELSE
ACCURATE – DEPENDABLE
General
TICKET COMPANY
NASHVILLE 4, TENNESSEE

Airline Commentary

By Eric Bramley

AS YOU probably know, the Air Line Pilots Association, after all these years, is building a new headquarters in Chicago. The man who has concerned himself most with the construction work is **David L. Behncke,** ALPA president. We're told that Dave has supervised the driving of almost every nail and the laying of every brick. The workmen on the job have dubbed him "Old Hawkeye" because if something isn't done right he catches it and sees that it's done over. Anyway, we understand that the new structure has had bestowed upon it a very fitting and appropriate unofficial name: The House of David.

•

Del Rentzel, former Civil Aeronautics Administrator, who was recently named chairman of the Civil Aeronautics Board, sure is collecting a bunch of appointments. Only recently he was named a Kentucky colonel, a colonel in the Confederate Air Force, and an Admiral in the Great Navy of Nebraska. So just call him colonel or admiral, and you can't go wrong.

•

This is what you call making the mostest of what you've got. **Bob Dunavan,** radio operator, and **Les Carlson,** station manager for Western Air Lines at Cheyenne, Wyo., have constructed a $6.90 electric eye for their ticket counter as a means of solving the problem of how to serve customers and still get paperwork done in a two-man office when one man is out to lunch. Using an ordinary house-bell transformer and chime, Dunavan and Carlson constructed an amplifier from junked parts and improvised a lens from a glass paperweight. Mounted on one end of the ticket counter in a discarded chrome coil shield, the light source sends a beam to the far end of the counter where it is picked up by a receiver constructed from a small shield, a pie tin and a $2 photo tube. Customers approaching the counter break the beam, causing the chime to sound in the rear office.

•

In case you airline girls don't realize what a fascinating, glorious business you're in, we wish to quote from an ad placed in a mid-west newspaper by a training school: "Airlines need unmarried young women for excellent positions, working with congenial people in clean, pleasant surroundings. Travel. Meet well-to-do businessmen, stars of screen and stage, executives and celebrities. Exciting careers in the fascinating field of flashing silver wings." All kidding aside, wouldn't such schools do better to put their advertising on a more realistic level?

•

Here's a Washington story we like. With a stepped-up defense program, numerous new agencies are being established in Washington. A board in this agency has control over certain critical items, another board in another agency controls something else, etc. It's starting to look like World War II. A businessman came to town not long ago and had a rather hectic time trying to get his business straightened out. As he came out of one agency he was heard to remark "The confusion doesn't seem to be as well organized as it was last time."

Aeronautical Book Auction Scheduled

An aeronautical book auction, claimed to be the first ever held in the U. S., is scheduled for Thursday, December 7, at the Swann Auction Gallaries, 146 East 56th Street, New York. Auction sessions will be held at 2 p.m. and 8 p.m. The collection, assembled over a 30 year period by the Aeronautical Library Service of New York, consists of books, pamphlets, documents, photographs, prints, paintings, periodicals and reports. It includes various editions of Lilienthal's famous *Birdflight as a Basis of Aviation,* a complete set of James Means Aeronautical Annals, volumes by Langley, Manley, Wise, Berget, Chanute, Maxim, etc. Also includes autographed volumes of Earhart, Byrd, Rickenbacker, Lindbergh, Santos-Dumont, Langley, Koehl, Fitzmaurice, and others.

AIRLINE PEOPLE

ADMINISTRATIVE

W. D. Bosworth has been elected treasurer of Robinson Airlines Corp. **W. J. Fields,** who has been serving as treasurer, becomes assistant treasurer.

Morris Shipley of American Airlines' Washington administrative office, has been appointed assistant to the vice president to fill the vacancy resulting from the resignation of **E. J. Foley.** Shipley joined AA in 1939 and has held various positions in the sales department.

Shipley

Arthur H. Meyer, onetime director of industrial relations for Pacific Airmotive Corp., has been appointed personnel director of The Flying Tiger Line. He succeeds **A. J. Molnar,** who resigned to enter other activities.

Joseph Jordan has been appointed director of public relations for Italian Airlines (LAI), in New York.

J. B. Carrillo, who has been associated with Douglas Aircraft Company for the past 14 years, has been named special assistant to the vice president and vice president, director, of Philippine Air Lines, with offices at San Francisco International Airport.

OPERATIONS-MAINTENANCE

John Davidson, district operations manager for Trans World Airlines at Madrid, has been assigned to operate the Frankfurt station until a permanent district operations manager can be named. Davidson joined TWA in 1941 and has been overseas since 1945.

L. R. Baumgaertner, American Airlines radio operator at Standiford Field, Louisville, for the past eight years, except for a period of service with the Air Transport Command, has been transferred to New York.

Basil Davis has been appointed district operations manager for Trans World Airlines at London. He formerly was assistant operations manager at Zurich.

F. E. Hembree has been named superintendent of stations for The Flying Tiger Line. He started with the Tigers as a mechanic in 1945 and recently has been in charge of the line's eastern terminal at Newark. He worked with Ryan Aeronautical and Consolidated-Vultee before joining the air cargo line.

Sam Higginbottom has been promoted from service trouble administrator to the position of airframe engineering manager for Trans World Airlines at its Kansas City overhaul base. He replaces **I. I. Islamoff,** resigned.

Miss Toy Perley has been promoted from supervisor of stewardesses in the Miami division of National Airlines to chief stewardess for the line.

TRAFFIC & SALES

Marvin L. Davis, assistant to the vice president of traffic and sales of Pioneer Air Lines for the past two years, has been promoted to general traffic and sales manager in one of four major personnel changes in the department. **Lewis M. Zafran,** formerly western regional traffic and sales manager, was promoted to assistant to the general traffic and sales manager. **W. W. Spradley,** former district traffic and sales manager in Fort Worth, has replaced Zafran in the regional post, while **David C. Clark,** Midland-Odessa traffic and sales manager, moved to Fort Worth to replace Spradley.

Davis

Willis C. Baker has been promoted to a new position as general traffic manager of National Airlines. An aviation veteran who has been pilot, CAA airways controller, ramp agent and salesman in the past 18 years, Baker assumes charge of scheduling and other traffic managers in addition to the duties for which he has been responsible as director of reservations and ticket offices.

Baker

Walter I. Waite has been named manager of traffic movement for American Airlines, succeeding **R. B. Bell,** who resigned to join Pan American World Airways. Waite joined AA in 1940 and recently has been in charge of coordinating domestic activities in traffic movement.

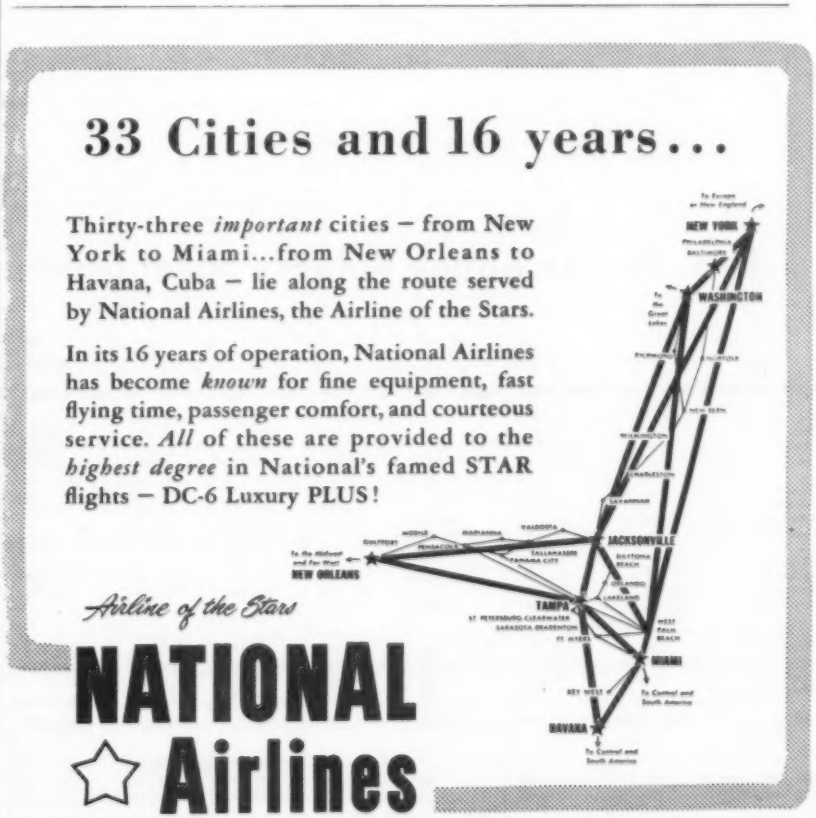
Tom McKibbon has been promoted from reservations manager for assistant district sales manager for Trans World Airlines in San Francisco. **Morey Stettler,** assistant reservations manager in Kansas City, moves up to reservations manager in Los Angeles.

Mel Anderson, air transportation veteran, whose appointment to the position of vice president-traffic and sales of Lake Central Airlines (formerly Turner Airlines) was announced recently (AMERICAN AVIATION, Oct. 9). He formerly was sales manager for Slick Airways and before that had been with Braniff, Bluebird Bus System and Air Express Division of Railway Express Agency.

Anderson

William V. McTaggart has been appointed regional sales manger for Colonial Airlines in Washington. He joined the company in 1947 as air cargo director. **Carl Roethgen,** formerly with American Airlines in sales and advertising posts for 14 years, has been appointed to Colonial's New York sales office as a special representative.

TWA
Now you can fly direct to
LONDON
and FRANKFURT
by
TWA
In addition to luxurious TWA Skyliner service direct to PARIS, ROME and other European capitals.
See your travel agent or call Trans World Airlines
Across the U.S. and overseas... you can depend on TWA


33 Cities and 16 years...
Thirty-three important cities – from New York to Miami...from New Orleans to Havana, Cuba – lie along the route served by National Airlines, the Airline of the Stars.
In its 16 years of operation, National Airlines has become known for fine equipment, fast flying time, passenger comfort, and courteous service. All of these are provided to the highest degree in National's famed STAR flights – DC-6 Luxury PLUS!
NEW YORK
WASHINGTON
JACKSONVILLE
NEW ORLEANS
TAMPA
MIAMI
HAVANA
Airline of the Stars
NATIONAL
Airlines

U. S. Domestic Airline Traffic for July, 1950

Airlines	Revenue Passengers	Revenue Passenger Miles	Available Seat Miles	Passenger Load Factor %	Mail Ton-Miles **	Express Ton-Miles	Freight Ton-Miles	Total Ton-Miles Rev. Traffic	Available Ton-Miles Flown	% Available Ton-Miles Used	Revenue Plane-Miles	Scheduled Miles	% Scheduled Miles Completed
American	312,601	164,453,000	229,168,000	71.76	692,808	535,423	2,807,448	19,866,501	29,760,090	66.76	5,266,846	5,115,039	99.36
Braniff	53,785	18,385,000	34,055,000	53.99	100,330	73,414	155,221	2,089,926	4,396,376	47.54	956,905	952,427	99.80
Capital	126,882	38,424,000	70,720,000	54.33	116,569	166,122	779,282	4,736,613	9,686,760	48.90	1,933,763	1,866,704	98.40
Caribbean	7,001	552,000	1,236,000	44.66	803	....	2,151	47,353	126,835	37.33	49,142	48,944	99.79
C & S	26,932	9,503,000	18,702,000	50.81	43,741	62,924	68,988	1,085,932	2,170,054	50.04	644,605	638,491	99.73
Colonial	20,077	4,933,000	10,594,000	46.56	7,428	6,502	8,087	506,884	1,240,746	40.85	360,491	360,473	99.27
Continental	18,739	6,866,000	14,691,000	46.74	14,528	9,051	41,938	723,384	1,529,249	47.30	519,639	504,223	99.64
Delta	52,748	22,989,000	40,136,000	57.28	84,021	82,867	257,718	2,632,975	5,306,411	49.62	1,204,554	1,161,426	99.88
Eastern	216,687	98,395,000	162,872,000	60.41	336,737	316,881	883,961	11,484,545	22,823,699	50.32	4,339,082	4,181,436	99.68
Hawaiian	31,899	4,124,000	6,132,000	67.25	4,357	8,979	44,479	387,382	683,160	56.70	276,647	246,498	98.36
Inland*	9,039	3,738,000	7,198,000	51.93	11,084	5,799	17,674	392,979	828,025	47.46	301,458	301,940	99.84
MCA	31,249	9,491,000	18,999,000	49.96	26,212	19,673	40,167	995,769	2,072,135	48.06	760,307	744,000	99.99
National	28,777	17,445,000	36,996,000	47.15	43,293	53,750	191,482	2,057,214	5,098,837	40.35	922,702	864,191	98.78
Northeast	46,503	9,017,000	17,214,000	52.38	9,393	12,246	26,163	863,164	1,738,567	49.65	490,965	482,668	95.07
Northwest	80,674	55,320,000	86,470,000	63.98	171,026	201,038	791,200	6,467,758	11,215,717	57.67	1,830,301	1,629,170	99.01
Trans Pac.	9,694	1,250,000	2,383,000	53.12	....	67	1,164	93,837	180,691	51.93	84,112	73,601	100.00
TWA	141,009	108,361,000	160,590,000	67.48	632,685	456,647	1,066,462	12,559,169	19,748,396	63.60	4,069,874	4,024,486	99.39
United	251,649	142,849,000	186,795,000	76.47	892,436	598,775	2,616,480	17,819,786	28,741,889	62.00	4,841,007	4,647,107	99.80
Western*	50,023	20,188,000	31,818,000	63.45	70,069	45,245	70,362	2,114,068	3,362,379	62.87	813,094	797,469	99.24
TOTALS	1,515,968	736,283,000	1,136,769,000	64.76	3,257,520	2,655,403	9,870,427	86,925,239	150,710,016	57.67	29,665,494	28,640,293	99.37

* Operations of Western and its subsidiary, Inland, should be considered as consolidated although reports are filed separately as shown here.
** Includes air parcel post.

U. S. International Airline Traffic for July, 1950

Airlines	Revenue Passengers	Revenue Passenger Miles	Available Seat Miles	Passenger Load Factor %	U. S. Mail Ton-Miles **	Foreign Mail Ton-Miles	Express Ton-Miles	Freight Ton-Miles	Total Ton-Miles Rev. Traffic	Available Ton-Miles Flown	% Available Ton-Miles Used	Revenue Plane-Miles	Scheduled Miles	% Scheduled Miles Completed
American	8,111	6,295,000	9,955,000	63.23	9,863	3,121	1,609	124,891	803,404	1,333,762	60.24	196,783	181,635	100.00
Amer. O'Seas	15,910	25,524,000	36,543,000	69.85	188,933	49,785	276,714	....	3,287,009	5,086,287	64.62	728,191	728,015	98.30
Braniff	1,999	3,857,000	11,008,000	35.04	7,932	1,523	....	71,504	457,456	1,604,174	29.64	254,403	265,969	95.65
C & S	2,471	2,550,000	5,692,000	44.80	2,540	332	....	50,307	314,742	680,799	46.23	148,315	143,902	100.00
Colonial	3,216	2,605,000	3,838,000	67.87	731	532	....	4,202	280,140	461,344	60.72	73,815	74,920	99.20
Eastern	1,747	2,044,000	3,595,000	56.86	6,859	....	....	18,503	240,784	434,741	55.39	72,882	64,480	100.00
National	8,473	2,264,000	3,696,000	61.26	985	....	18,127	....	247,811	474,221	52.26	65,916	64,976	100.00
Northwest	5,780	10,944,000	17,135,000	63.87	159,362	20,251	16,304	478,653	1,852,474	2,616,664	70.80	552,358	479,639	99.20
Panagra	7,999	8,387,000	18,801,000	44.61	29,427	17,602	171,261	....	1,157,201	2,526,131	45.81	489,807	481,982	99.46
PAA														
Latin Amer.	69,367	63,927,000	93,322,000	68.50	214,115	65,405	1,616,695	90,266	8,074,425	13,145,756	61.42	2,392,562	1,958,135	99.27
Atlantic	16,620	36,197,000	46,164,000	78.41	256,990	66,266	620,663	20,292	4,902,423	6,776,063	72.35	1,113,506	1,054,067	97.61
Pacific	7,130	23,780,000	35,026,000	67.89	514,499	59,835	560,244	....	3,504,887	5,352,135	65.49	796,672	777,500	95.78
Alaska	4,760	4,558,000	7,532,000	60.52	33,081	....	356,468	....	856,967	1,602,231	53.49	235,140	214,174	99.74
TWA	14,720	40,438,000	63,763,000	63.42	247,350	115,647	....	504,767	5,291,264	8,915,357	59.35	1,524,124	1,470,003	97.63
United	4,508	14,825,000	17,200,000	86.19	44,460	....	....	95,473*	1,702,361	2,238,444	76.05	325,369	170,400	100.00
TOTALS	172,811	248,195,000	373,270,000	66.49	1,717,127	400,299	3,638,081	1,458,858	32,373,348	53,248,109	61.92	8,969,843	8,109,797	98.32

* Includes 44,135 ton-miles of Army mail under military contract.
** Includes air parcel post.

NOTE: Data in above tabulations were compiled by American Aviation Publications from monthly reports filed by the airlines with the Civil Aeronautics Board. Figures for American Airlines include that carrier's service to Mexico but not to Canada; for Braniff to South America; C & S to South America; Colonial to Bermuda; Eastern to Puerto Rico; National to Havana; Northwest to Orient and Honolulu, and United to Honolulu. Operations of U.S. carriers into Canada are included in domestic reports to CAB, in accordance with CAB filing procedures.

U. S. Feeder Airline Balance Sheet Data as of June 30, 1950

Airlines	Total Assets	Current Assets	Investments & Special Funds	Operating Prop. & Equipment	Deferred Charges	Current Liabilities	Long-Term Debt	Deferred Credits	Operating Reserves	Capital Stock	Surplus
All American	$ 2,505,739	$ 422,518	$ 210,545	$ 1,460,720	$ 277,554	$ 1,124,436	$	$ 21,659	$ 44,174	$ 513,660	$ 801,789
Bonanza	567,842	126,495	20	257,175	178,242	175,813	62,900	890	....	558,518	-230,280
Central	581,809	381,201	....	120,580	80,028	113,875	432,901	142	....	25,000	9,892
Challenger*	259,058	103,300	600	143,761	11,396	79,500	6,491	3,064	....	294,646	-124,644
Empire	434,509	176,652	500	144,038	67,454	104,982	....	10,132	....	337,900	-18,504
Mid-West	217,308	85,522	....	68,788	59,987	112,306	58,000	56,245	....	4,250	103,700
Monarch*	1,016,963	424,152	8,898	453,144	184,985	480,112	....	1,089	....	528,540	7,221
Piedmont	1,256,066	582,722	159,781	429,010	68,585	326,795	....	5,041	62,889	1,006,380	-145,039
Pioneer	1,259,357	768,165	731	349,226	141,235	307,846	....	15,635	....	90,000	845,876
Robinson	887,320	204,184	9,712	590,143	83,281	694,273	580,922	2,945	5,122	175,027	-570,969
Southern	1,169,323	587,324	511	405,378	148,141	525,819	474,570	2,106	....	492,700	-325,871
Southwest	1,324,248	873,497	4,899	357,513	88,338	272,180	....	23,491	61,989	324,680	641,909
Trans-Texas	790,780	393,826	52,518	320,150	24,286	230,995	....	1,478	....	900,000	-341,694
Turner**	335,169	66,854	721	191,009	76,585	78,731	59,113	....	13,211	217,983	-33,869
West Coast	1,004,195	665,204	200	240,355	98,416	181,207	100,000	6,998	14,509	187,371	514,110
Wiggins	222,414	35,650	52,573	35,409	98,781	16,393	....	....	3,335	77,868	124,818
Wis. Central	843,748	295,821	10	248,517	234,022	278,173	....	4,479	....	155,000	406,096
TOTALS	14,675,848	6,193,087	502,239	5,814,916	1,921,316	5,103,456	1,774,897	155,394	205,229	5,889,523	1,664,541
					Helicopter Mail Service						
Bal. Air Serv.	426,572	123,036	10	163,971	79,667	18,564	....	....	....	401,100	6,908
Los Angeles	256,733	97,037	10	131,566	26,732	10,435	....	5,210	....	294,000	-52,912

* Figures for Challenger Airlines and Monarch Air Lines are as of May 31, 1950 only. Companies have merged and began operating under the name of Frontier Airlines, Inc. on June 1, 1950.
** Figures for Turner are preliminary.

U. S. All-Cargo Airline Operations, April-June, 1950

Airlines	Freight Ton-Miles	Available Ton-Miles Flown	% Available Ton-Miles Used	Revenue Plane-Miles Scheduled	Scheduled Miles Completed	% Scheduled Miles Completed	Total Operating Revenues	Freight Revenues	Non-Scheduled Transport Rev.	Total Operating Expenses	Aircraft Operating Expenses	Ground & Indirect Expenses	Net Operating Income
April, 1950													
Air News	83,720	101,070	82.83	31,074	31,596	98.35	$ 23,519	$ 23,353	$	$ 15,677	$ 13,220	$ 2,457	$ 7,842
Fly. Tiger	1,147,504	1,899,912	60.40	252,693	294,933	82.88	260,712	177,852	10,611	248,838	139,738	109,100	11,873
Slick	2,399,658	3,494,038	68.68	610,201	672,935	91.41	402,445	341,310	18,799	432,623	220,017	212,606	-30,178
US Airlines	330,743	575,805	57.44	115,161	119,995	96.35	46,495	36,072	10,082	71,374	42,180	29,194	-24,880
TOTALS	3,961,625	6,070,825	65.25	1,009,129	1,119,459	83.82	733,171	578,587	39,492	768,512	415,155	353,357	-35,343
May, 1950													
Air News	50,559	103,250	48.97	*30,610	30,610	100.00	$ 21,238	$ 20,920	$	$ 14,398	$ 11,935	$ 2,463	$ 6,840
Fly. Tiger	1,423,786	2,052,897	69.35	267,492	294,933	83.02	280,955	204,007	14,412	258,616	151,145	107,471	22,339
Slick	2,848,082	3,727,467	76.41	645,320	730,328	79.30	441,423	405,711	17,070	419,477	223,990	195,487	21,946
US Airlines	322,478	677,644	47.58	123,208	128,390	94.23	46,405	24,727	21,601	81,084	51,494	29,590	-34,679
TOTALS	4,644,905	6,561,258	70.78	1,066,630	1,184,261	82.34	790,021	655,365	53,083	773,575	438,564	335,011	16,446
June, 1950													
Air News	49,730	98,441	50.52	28,126	28,126	100.00	Under CAB regulations the airlines are not required to file a report of revenues and expenses for the month of June, but instead file a statement for the quarter ending June.						
Fly. Tiger	1,403,416	1,930,573	72.69	248,662	294,933	75.13							
Slick	2,930,055	3,722,900	78.72	647,057	730,328	79.78							
US Airlines	219,386	412,753	53.15	84,347	96,800	92.69							
TOTALS	4,602,587	6,164,667	74.65	1,008,192	1,150,187	80.16							
Quarter Ending June 30, 1950													
Air News	184,009	302,761	60.77	89,810	90,332	99.42	$ 65,696	$ 64,966	$	$ 44,194	$ 36,346	$ 7,849	$ 21,502
Fly. Tiger*	3,974,706	5,883,382	67.55	768,847	884,799	80.29	925,223	577,208	50,240	774,339	436,921	337,418	150,884
Slick	8,177,795	10,944,405	74.71	1,902,578	2,133,591	80.07	1,350,218	1,167,982	45,487	1,281,358	660,971	620,388	68,859
US Airlines	872,607	1,666,202	52.37	322,716	345,185	94.53	122,916	87,863	34,455	227,166	136,288	90,878	-104,250
TOTALS	13,209,117	18,796,750	70.27	3,083,951	3,453,907	82.13	2,464,053	1,898,019	130,182	2,327,057	1,270,526	1,056,533	136,995

* The Flying Tiger Line's revenues and expenses for the quarter ending June 30, 1950 are preliminary.

U. S. Airline Balance Sheet Data as of June 30, 1950

Airlines	Total Assets	Current Assets	Investments & Special Funds	Operating Prop. & Equipment	Deferred Charges	Current Liabilities	Long-Term Debt	Deferred Credits	Operating Reserves	Capital Stock	Surplus
American	$ 127,432,830	$ 41,324,915	$ 26,860,369	$ 57,330,174	$ 1,878,480	$ 24,135,524	$ 35,950,000	$ 2,476,790	$	$ 46,432,835	$ 18,417,680
Amer. O'Seas	30,819,694	10,005,629	74,350	19,493,855	1,245,859	3,070,945	6,800,000	3,432,734	874,533	1,749,825	14,751,862
Braniff	13,852,312	6,189,765	199,518	6,250,993	1,006,951	2,858,860	2,581,132	286,917	85,095	2,500,000	5,540,328
Capital	12,636,407	5,496,439	630,930	4,271,247	564,299	2,930,151	6,553,500	455,036	151,927	509,205	2,036,587
Caribbean	432,750	156,723	879	229,877	30,109	100,292	237	21,007	49,267	94,538	167,409
C & S	7,544,098	5,308,745	1,167,882	705,621	298,153	1,640,958	. . . .	153,211	145,000	4,893,645	711,285
Colonial	2,966,391	1,746,174	52,425	1,113,830	51,607	795,831	100,000	105,160	117,707	515,600	1,332,094
Continental	4,430,221	2,292,670	11,617	1,920,091	205,793	1,209,223	875,000	55,926	23,921	386,757	1,879,394
Delta *	12,951,820	4,806,653	171,344	7,675,194	298,628	3,359,721	1,925,000	171,652	93,202	1,500,000	5,901,245
Eastern	57,300,636	32,716,966	7,957,120	14,339,782	2,286,769	18,404,742	2,666,668	2,411,234	3,441,201	2,395,572	27,981,220
Hawaiian	2,702,671	1,325,091	263,904	976,962	34,753	423,663	. . . .	57,674	. . . .	1,750,000	471,334
Inland ***	1,205,709	999,692	3,035	86,027	8,397	345,364	. . . .	46,336	. . . .	164,218	649,791
MCA	4,883,421	1,985,075	25,588	2,995,304	273,303	1,674,649	990,553	76,992	11,634	414,528	1,715,065
National	8,938,478	3,420,726	505,016	4,642,494	369,150	1,580,129	. . . .	365,656	238,927	1,000,000	5,753,766
Northeast	4,864,519	1,644,369	29,770	3,034,702	145,708	660,946	619,000	179,514	153,560	2,223,129	1,028,370
Northwest	44,917,888	10,648,750	221,936	32,353,572	1,620,162	8,666,238	16,710,363	1,219,427	. . . .	17,829,205	492,656
PAA System	184,237,435	76,343,233	7,955,483	72,691,257	27,247,462**	41,986,668	30,000,000	18,254,225	3,136,092	6,145,082	84,715,368
Panagra	17,712,190	11,123,496	238,620	5,508,916	802,567	4,222,047	1,200,000	1,517,462	2,530,445	4,750,000	3,492,236
Trans Pacific	554,088	82,315	43	321,618	124,453	404,512	. . . .	11,917	2,348	923,145	-787,834
TWA	92,944,101	32,975,867	14,106,874	41,565,453	3,986,106	19,715,730	42,742,416	8,094,207	. . . .	12,123,360	10,268,388
United	100,380,281	32,438,881	2,633,622	62,032,615	1,987,113	22,022,917	24,120,000	5,521,444	. . . .	29,999,567	11,571,936
Western ***	10,269,351	2,851,548	394,096	6,398,051	380,989	2,672,547	2,692,257	257,961	. . . .	525,164	4,121,422
TOTALS	743,977,291	285,883,722	63,504,421	345,537,635	44,846,811	162,881,657	176,526,126	45,172,482	11,054,839	138,845,375	202,211,602

* Figures for Delta Air Lines are preliminary.
** Includes $17,235,887 in estimated mail pay in excess of amount accrued under temporary and final rates under review.
*** Operations of Western and its subsidiary, Inland should be considered as consolidated, although reports are filed separately as shown here.

NOTE: Above tabulation includes overall balance sheet data for companies, domestic and international combined. Feederline or local service carrier data appear in a separate tabulation.

U. S. All-Cargo Airline Balance Sheet Data as of June 30, 1950

Airlines	Total Assets	Current Assets	Investments & Special Funds	Operating Prop. & Equipment	Deferred Charges	Current Liabilities	Long-Term Debt	Deferred Credits	Operating Reserves	Capital Stock	Surplus
Air News	$ 216,268	$ 87,587	$	$ 122,434	$ 6,247	$ 30,849	$ 50,000	$	$	$ 100,000	$ 35,419
Flying Tiger*	2,595,943	1,353,318	42,519	1,165,773	34,333	657,259	. . . .	127,803	103,744	761,227	945,910
Slick	2,125,839	1,294,389	. . . .	657,094	174,341	857,928	1,323,061	1,441	. . . .	1,821,020	-1,877,611
U.S. Airlines	386,005	221,460	. . . .	68,440	96,106	76,189	. . . .	1,564	15,381	1,500,000	-1,207,128
TOTALS	5,324,055	2,956,754	42,519	2,013,741	311,027	1,622,225	1,373,061	130,808	119,125	4,182,247	-2,103,410

* Figures for the Flying Tiger Line are preliminary.

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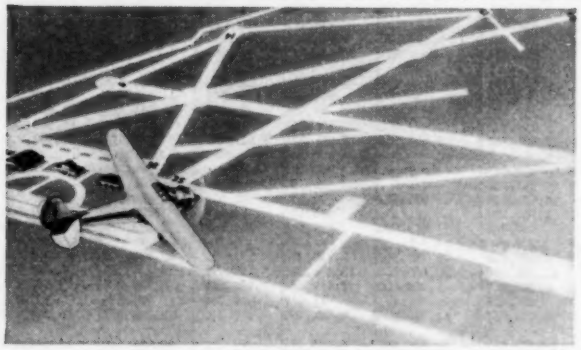

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SERVICING BUSINESS PLANES is an important part of Dixie's operation. Here Manager Dal Miller, (right) discusses maintenance with A. W. Frederick, Marchant Calculator Distributor, Memphis.

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AIRPORTS
Including Features Formerly in AIRPORTS AND AIR CARRIERS Magazine

Attractive Terminal Boosts Lubbock's Airline Patronage

By KEITH SAUNDERS

UNLIKE many cities that have built terminals far more costly than could realistically be supported by their aviation activity, Lubbock, Texas (pop. 72,000) could afford a fine $377,000 airport terminal building.

Due to agriculture and oil, it is a prosperous community. Furthermore, it is aviation minded (there are 136 private planes based on the municipal airport). And, thanks to a capable management and fortuitous circumstance, the airport is solidly in the black.

Decision to build the terminal was made in 1948, while the airport was still under lease to the government. At that time, the airlines serving Lubbock were using an old field and the terminal was a shed attached to an old hangar. The whole place looked run down, and not even a cup of coffee was available.

Edward L. Colby
Aviation Director
Lubbock, Texas

Lubbock needed a modern terminal, it had the money to build one together with some Federal aid, and when it became certain that the airport which the government had under lease was going to be turned back to the city, Lubbock moved fast.

Contract for construction of the terminal was awarded to W. G. McMillan on September 20, 1948, and work was completed on January 16 this year.

Lavish & Modern

The building contains 16,000 square feet of floor space and houses four airline offices, a control tower, coffee shop and dining room, CAA and Weather Bureau space, a baggage room, lobby and public space. Air-conditioned throughout, it is far more lavish than one would expect or would ordinarily find at an airport serving a city of less than 100,000 population. And the dining room and coffee shop are as modern and tasteful in their appointments as the latest New York restaurant.

One tangible benefit that has resulted from the completion of the new building is an upswing in airline patronage at Lubbock. Many of the best people of the area, who formerly shied away from the airport, now enjoy driving out there to have lunch or dinner and to meet friends or see friends off.

Also, several of the local civic clubs have their regular luncheon meetings in the airport restaurant. This has resulted indirectly in air travel gaining greater acceptance among the people in the Lubbock area, and the increase in airline partronage in turn has increased the airport's revenues.

The Lubbock airport was turned back to the city upon expiration of the government's lease on January 4, 1949. At which time the Airport Board established an Airport Revenue Fund with a zero balance. From then until the end of the fiscal year, September 30, 1949, the airport, under the management of Edward L. Colby, aviation director, was in the black to the amount of $59,447.

Non-Recurring Costs

This balance was whittled down a little last fiscal year (ended September 30, 1950), when revenues of the airport totaled $118,873 and expenses totaled $122,032. However, the expenditures included $65,338 in capital outlays for permanent improvements made to runways, taxiways and buildings.

Nearly offsetting these non-recurring expenditures were certain non-recurring items of revenue, such as $44,071 from the sale of surplus barrack-type buildings for which the airport management had no use and $17,300 realized from the rental of unused land for cotton storage purposes.

For fiscal 1950-51, when these ex-

Modern Terminal—The air-minded citizens of Lubbock, Texas, are justifiably proud of this modern terminal building at their municipal airport. Building cost $377,000 and compares favorably with the terminals of many major cities, particularly in its interior appointments and functional design.

Dining Room—An understably popular spot both with air travelers and with individuals and groups in the Lubbock (Tex.) area is this attractive dining room in the terminal building at Lubbock Municipal Airport. Room is air conditioned and has furnishings unsurpassed in any but the most swank eating places.

traordinary revenue and expense items will be missing from the airport budget, it is estimated that revenues of Lubbock Municipal will total $79,383 and expenses $72,393, for a net profit of nearly $7,000.

Farm Land Rental

Aside from hangar and building rentals, the principal item of revenue at the Lubbock airport is from agricultural leases. Of the 1,597 acres of land owned by the city at the airport site, approximately 763 acres are leased to a tenant farmer, and the city's net income from this source last fiscal year was $8,185, which was more than it realized from terminal rentals or from landing fees. Even better results are expected this year.

Hangar rentals last fiscal year totaled $11,524, representing the rental of space and facilities to three fixed base operators, Vickers Aircraft, Wes-Tex Aircraft and Hogan Aero Repair Service.

Revenues from landing fees amounted to $7,195, based on the old Standard Form ATA contract providing for a landing fee schedule as follows: for the first scheduled trip arrival, $75 per month; for the second scheduled trip arrival, $50 per month; for the third and subsequent trip arrivals, $25 per month, for DC-3 or similar type aircraft, with increases provided by increments for higher gross weights.

The City of Lubbock claims that these fees, which were in effect when the city took the field over and which are not subject to renegotiation until January 1, 1953, are not equitable, and an effort will be made to work out terms more favorable to the city.

Exterior Features

In addition to one of the finest administration buildings to be found in any but the larger airline terminal points, Lubbock boasts of the exterior facilities of its airport. The field has its own water supply, fire protection system, and a landscaped area provided with an underground sprinkler system. The entrance road is lighted by low-set lights which will not interfere with night operations. To the south of the "ad" building is a large paved parking area which is well lighted for night use.

A runway reconstruction program, which includes reinforcement of the north-south runway to handle wheel loads up to 50,000 pounds is now nearing completion, and high intensity runway lighting is being installed, A self-aligning tetrahedron is another facility of the landing area.

Ohio Airport Access Roads Pace State's Field Progress

An alert and cooperative state highway department, maintaining liaison with its state aeronautics board and the Civil Aeronautics Administration, can do a lot toward keeping the construction and improvement of access highways abreast of airport developments within the state, thereby reducing ground travel time and increasing the value of air service.

This has been and is being demonstrated in Ohio, where the Department of Highways is giving airport access facilities an important place in its master thoroughfare plans.

Here are some of the things the department is doing:

Akron-Canton: The Akron-Canton Airport is located approximately midway between the two cities. Adequate service between the airport and each of the two cities will be assured by the development of Interstate Route 8, which passes a short distance west of the airport. This route is now integrated with the adopted expressway plan of the City of Akron and similarly will become a part of the master plan now being developed for the Canton area.

Youngstown: Youngstown Municipal Airport is on State Route 90, approximately 10 miles north of the corporate limits. Plans are being prepared at present for a project to provide a four-lane divided highway from Youngstown to the vicinity of the airport.

Cleveland: As far back as 1944, when the first expressway plans for the Cleveland metropolitan area were formulated, one of the major freeways contemplated was a radial route connecting downtown sections with the western and southwestern areas of the city in the area where busy Cleveland Municipal Airport is located.

This road, to be known as the Berea-Airport Freeway, has not yet been built, but its proposed location has been established, and the airport was one of the factors influencing its proposed line. Incidentally, completion of this expressway will reduce travel time between the airport and Public Square from the present 39 minutes to about 27 minutes. This, in turn, will have the effect of reducing present travel time from downtown Cleveland to New York by 11%, to Chicago by 21%, and to Detroit by 26%.

Commenting on these examples, T. J. Kauer, director of the highway department, said the department recognizes the problem but cannot consider access roads to all airports unless traffic calls for it and unless the airport is located along a route where other considerations are apparent because of public use.

"On the whole, though, you will find that in all metropolitan areas in Ohio when master plans are being drawn for the future, access routes to the airports are being seriously considered. I am certain this policy will be continued here in Ohio. Meanwhile, the Highway Department has cooperated in providing adequate route markings and signs leading to the airports of the state and has paid considerable attention to speeding up traffic on the road systems we have to work with."

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TRADE MARK

AIRPORTS

Avianca to Install First Whiting Loadair Expediter

But for the diversion of numerous airlines cargo planes to the Far East air lift, an airport in this country might have been the first to try out the Whiting Loadair, promising expediter of airport operations.

As it turned out, the first Loadair installation will be built for Aerovias Nacionales de Colombia (Avianca) and erected at Soledad Airport, Barranquilla (AMERICAN AVIATION, October 2).

The Loadair system is novel but simple in concept. It carries the plane to a freight dock instead of freight having to be hauled to the plane. A plane arriving at an airport for loading or unloading is taxied onto three small and virtually flush tables (one for each wheel), is automatically chocked, and is then pulled by underground cables and a power winch into position with its main cargo door up against the loading dock.

Obvious advantages of the system are: fixed location of facilities, decreased loading and unloading time, reduced freight handling costs, increased safety, and savings in pavement costs.

Freight Use First

Loadair is designed to handle both freight and passenger planes, but Avianca will use it initially, at least, only to speed up its freight handling operations at Soledad Airport. American Airlines was thinking of making a test installation of the system at Newark Airport, but deferred the experiment indefinitely when the Pacific air lift came into being.

Service advantages claimed for the system by its developer, the Whiting Corporation, of Harvey, Illinois, are: protection of passengers or cargo from unfavorable weather or temperature; better control of passenger traffic or cargo routing; improvement in baggage handling facilities by use of standardized conveyors or other equipment; reductions in terminal ground time; and facilitation of paper work, manifesting, etc., by having a central location directly adjacent to the aircraft.

No Ramp Trucks

Economies claimed, in addition to the general major economy of reduced ground time and resultant higher aircraft utilization, include: elimination of much expensive mobile equipment requiring chauffeurs and handlers; a reduction in ramp paving expenditures; reduction in snow removal costs in the ramp areas; reduction in the number of employes needed to load and unload passengers or cargo; air conditioning can be supplied from the building instead of requiring special or mobile apparatus; facilitation of fueling and servicing operations with resultant savings.

Safety considerations are: elimination of mobile ramp equipment, thereby reducing collision hazards; positive electronic controls position the airplane instead of the present system involving ramp attendants, hand signals, personal judgment of distances, etc.; the pilot does not have to taxi in close quarters.

Quick Expansion

Loadair will compensate for conventional door heights and fore and aft door location by means of an adjustable platform that can be preset in a moment's time. Tail-loading aircraft can be positioned close to the dock and in a location where they will be sheltered by the roof of the dock.

The present design is adequate for existing aircraft, but the capacity can be increased correspondingly without changing form as gross weights increase. Variations in the distance between the main wheels (tread) can be met by a change in the "spacer" bar connecting the two units on which the main wheels rest, and this change could easily be made between flights without delaying the flight operation.

The entire air transport industry, and especially the cargo phase of it, will watch results of the Loadair installation at Baranquilla with considerable interest. And if it proves to be nearly as good as its advance billing indicates, Loadair installations will doubtless be made at a number of U. S. airports before the end of 1951.

Soil Stabilization

A simple and economical method for quickly stabilizing marshy ground on which a road or airport is to be built is described in a folder now available from the McKiernan-Terry Corp., 15 Park Row, New York 7, N. Y. The method of draining water from the soil to be treated is fully described, together with an explanation of the equipment used. Booklet is illustrated.

CAA AIRPORT GRANTS

During the two weeks ended September 15, Federal-aid airport grant offers totaling $275,575 were made by the Civil Aeronautics Administration to 21 communities (airport classes in parentheses), as follows:

Arkansas: Adams Field, Little Rock (4), $13,000; Springdale Municipal (1), $5,468.
Georgia: Cochran Field, Macon (4), $12,200.
Idaho: Council Mun. (1), $2,619; Sanpoint Mun. (2), $4,633; Weiser Airport (2), $510.
Louisiana: Alexandria Mun. (6), $15,000.
Maine: Houlton Mun. (4), $6,400.
Michigan: For Airport, Iron Mountain (3), $8,800.
Minnesota: Big Falls Mun. (1), $13,000; Duluth Mun. (4), $45,000; Crystal Airport, Minneapolis (1), $6,850; Owatonna Mun. (2), $4,000; Virginia Mun. (2), $15,000; Winona Mun. (3), $12,500.
Nebraska: David City Mun. (1), $6,000.
New Mexico: Hobbs AFB (7), $27,126; Silver City Mun. No. 2 (3), $42,482.
Ohio: Crestline Airport, Galion (1), $17,100.
Oregon: Hlamath Falls Mun. (5), $12,087.
Texas: Mineral Wells Mun. (3), $5,800.

These boosted to 1,502 the total of projects on which grant offers have been made under the Federal Airport Program, and brought to $128,053,207 the amount of Federal funds involved.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, AND CIRCULATION REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946 (39 U. S. C. 233)

Of AMERICAN AVIATION, "The News Magazine of Air Transportation," published weekly at Harrisburg, Penna., for Sept. 1, 1950.

1. The names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, Wayne W. Parrish, Washington, D. C.; Editor, Wayne W. Parrish, Washington, D. C.; Managing Editor, Leonard Eiserer, Washington, D. C.; Business Manager, John H. Poole, Washington, D. C.

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3. The known bondholders, mortgagees, and other security holders, owning or holding 1 percent or more of total amount of bonds, mortgages, or other securities are: None.

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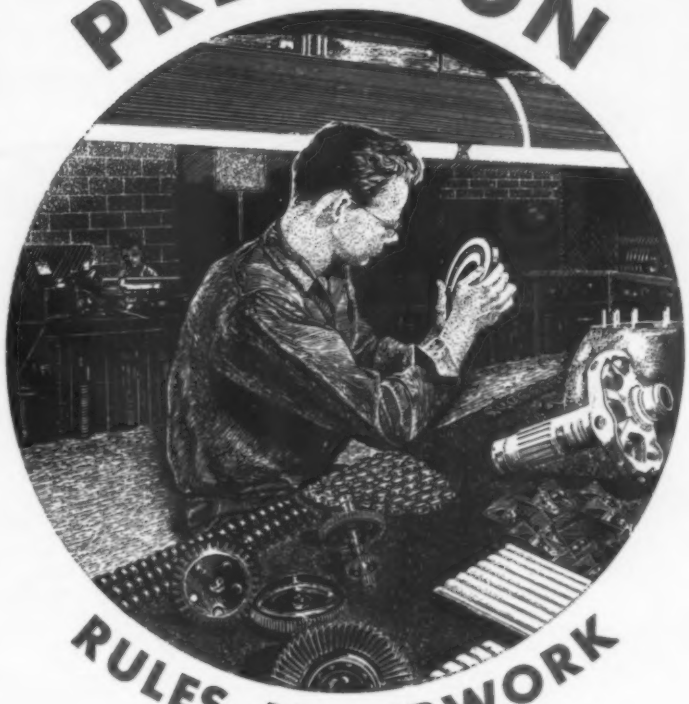
5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: 11,052 each issue (26 issues).

JOHN H. POOLE
(Signature of business manager)

Sworn to and subscribed before me this 6th day of October, 1950.

J. RUSSELL SHEFFER,
Notary Public.
(My commission expires March 9, 1951)

PRECISION



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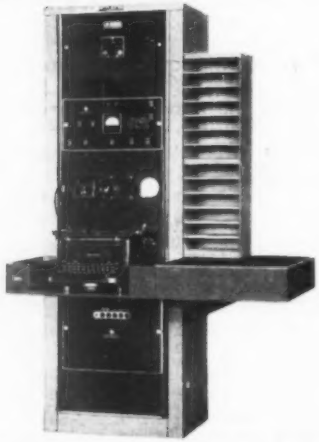

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CAA Plane to Demonstrate Stall Recovery Techniques

By Barbara J. Ward

Recently a pilot on a farm out west stalled when making a landing approach in a Taylorcraft. He pushed the stick forward to nose the plane down, as he had been taught and dove straight into the ground.

It need not have happened. Experiments have shown that the best way to recover from a stall in a Cub-type plane is to apply full power and hold the nose on the horizon.

CAA now has a specially equipped plane touring the country to demonstrate how stall recovery in a Cub plane can be made with as little as 26 feet loss of altitude, and how stall warning indicators can be used as flight instruments to indicate the maximum rate of climb. Flight instructors, pilots and CAA personnel will be flown free of charge.

Tour Schedule

CAA regional offices will know the plane's schedule but in general the itinerary is: **CAA Region 3,** Midwest area, until Oct. 27; **CAA Region 7,** Seattle and northwest, through November; **CAA Region 6,** California and New Mexico, Dec. 4 to Jan. 26; **CAA Region 4,** Texas area, Jan. 29 to March 9; **CAA Region 2,** Atlanta and southeast, March 12 to April 20; and **CAA Region 1,** New York area, April 23 to June 15.

The plane, a Piper J-3, was used in flight tests by Phillip Rulon and Kenneth Vaughn, the results of which recently were published in a CAA report, "Stall Recovery and Stall Warning Instrumentation in a Lightplane."

The J-3 has a radio altimeter, and a stall warning device with five vanes is mounted on the left wing, triggered to actuate five lights in the cockpit successively as the plane approaches a stall. New to most pilots will be its Kollsman angle-of-attack indicator, a cockpit instrument which reads from −5° to +35° angle of attack. In level flight with power cut, or in a power-on steep climb, the indicator shows the approach to stall. When the needle reaches about 19°, the plane stalls.

Stall Recognition

Previous research under CAA contract had established some surprising facts about stalls. Pilots never will admit it, but tests showed that they cannot consistently recognize the point at which a plane will stall. And pilots who are good at recognizing a stall approach in one maneuver do not necessarily recognize a stall approach in other conditions of flight.

The plane now giving demonstration flights was used by Rulon and Vaughn to evaluate all possible combinations of flight controls and power for two stall recovery methods: "on horizon" recovery and "below horizon" recovery where the nose of the plane is dropped to pick up speed.

For full-power climb from a short field, attempting to clear obstructions, the best stall recovery proved to be to put the nose of the plane on the horizon and use rudder and elevator only. In the tests it took 10.5 seconds to recover, but the plane lost only 26 feet. Putting the nose of the plane below the horizon and using the same controls, the plane lost 130 feet of altitude.

An accompanying table shows the altitude loss for different methods of recovering from a straight-ahead power-on stall in a Cub plane.

Use Full Power

Stall tests of other conditions of flight showed that, with Cub aircraft, whenever full power is available it should be used. With power, the on-horizon method of recovery was superior to below-horizon recovery. The average loss of altitude for all on-horizon recoveries was 51.6 ft. compared with 128.1 ft. when the nose of the plane was "dumped." However, recovery on the horizon will take longer, approximately 11.6 seconds compared with seven seconds.

In stalls from straight-ahead maneuvers, full power and use of rudder and ailerons gave the best results. In turns, full power and coordinated use of rudder, elevator and aileron was generally the best method of recovery. Stalls out of left turns give a greater loss of altitude than stalls out of right turns—

Recovery from a Climbing Straight-Ahead Power Stall

Recovery Method	Calibrated Airspeed at Stall	Calibrated Airspeed at Recovery	Loss of Altitude In Feet	Seconds To Recover
Elevator—Below Horizon	35.87	67.07	108.00	5.73
Rudder, Elevator—On Horizon	34.90	63.49	26.00	10.54
Rudder, Elevator—Below Horizon	33.81	68.73	130.00	8.34
Aileron, Elevator—On Horizon	34.95	68.42	49.00	12.75
Aileron, Elevator—Below Horizon	34.94	75.01	164.00	8.39
Rudder, Aileron, Elevator—On Horizon	35.21	60.62	42.00	7.89
Rudder Aileron, Elevator—Below Horizon	34.95	67.47	98.00	6.56

A-G 14—Anderson-Greenwood 14 pusher lightplane, just certificated by CAA, will sell for $4,200 to $4,500. Powered by a 90-hp. Continental engine, it cruises at 110 mph, lands at 50 mph, has a wing span of 34 ft., and carries two persons and 80 lbs. baggage with full fuel. The manufacturer reports the plane will enter a spin only under full power, with wheel full back and a nose-high attitude of 70° or more. When control pressure is relaxed, the plane spirals out in less than one turn.

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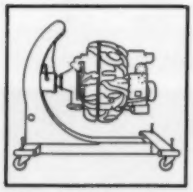

Convair "240" nacelle assembly held in horizontal position

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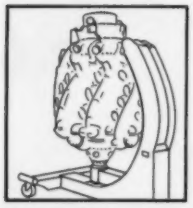

Pratt & Whitney R-4360 held in vertical position

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Best Methods of Stall Recovery

Maneuver	Contr ls*	Below Horizon Loss Altitude	Below Horizon Loss Time	On Horizon Loss Altitude	On Horizon Loss Time
Straight Ahead, Full Throttle	(P) R E	130	8.3	26	10.5
Straight Ahead, Cruising Power	P R E	158	5.	53	8.2
Straight Ahead, 1000 rpm.	P R E	114	6.8	38	13.5
Left Climbing Turn, Full Throttle	(P) R E A	122	6.8	69	13.9
Right Climbing Turn, Full Throttle	(P) R E A	109	6.2	46	12.1
Left Gliding Turn, 1000 rpm.	P R E	129	6.7	79	12.6
Right Gliding Turn, 1000 rpm.	P R E A	134	7.5	60	11.9
Left Steep Turn, 2100 rpm.	(P) R E A	102	7.7	..	...
Right Steep Turn, 2100 rpm.	(P) R E A	89	8.6	..	...
Left Slow Turn, 1500 rpm, 30° bank	P R E	149	8.2	63	10.3
Right Slow Turn, 1500 rpm, 30° bank	P E A	108	7.2	30	11.0
AVERAGE**		128.1	7.	51.6	11.6

* (P)—full power at time of stall: R—rudder; E—elevator; A—aileron.
** Excludes steep turns.

apparently the effect of torque from full power helps the pilot bring the wings level out of a right turn and handicaps him slightly in a left turn. This brings to mind the lethal "last turn in" to the field in a left hand traffic pattern.

The only instances in which the on-horizon stall recovery should not be used are with a dead engine or from vertical turns, in which the stall is usually unpredictable. On a dead stick landing, it is unhealthy to stall at an altitude below 135 ft. In stalls with a simulated dead engine, putting the nose on the glide path lost an average of 229 ft. and putting the nose below the glide path lost about 134 ft.

Use as Flight Instrument

Stall warning indicator lights or horns can be set to trigger at the edge of a stall, or they can be set to indicate the point of maximum climb.

Of stall warners now in use, the manufacturers of the Greene Safe Flight Stall Warner recommend that their instrument be located to come on at a point from three to five mph. above stalling speed. The Beech stall warner used in Bonanzas is generally located to signal from six to 10 mph. above stalling speed.

In the Piper J-3 flight tests, the stall warner was set to actuate at maximum angle of climb for the aircraft. By bracketing the signal, the pilot kept the plane near to its maximum climb. In maneuvers, altitude savings of from 50 to 150 feet resulted and the signal was received early enough to prevent the pilot's unknowingly approaching the edge of a stall. As a flight instrument to assure maximum climb on short field takeoffs and as an aid in recovering from stalls, the stall warner proved its effectiveness.

"We might train a man to memorize all the phone numbers he may want to call," Dr. Rulon said, in discussing the study. "But it is more sensible to print them in a phone book. Pilots should have either the benefit of a stall-resistant airplane or stall warning."

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CAA Airworthiness Directives

Beech AT-11 and C18S aircraft must undergo inspection of the wing center section steel truss joints in the nacelle region for fatigue cracks using magnetic particle inspection with portable equipment. Compliance is required at the next 100-hour inspection and at each 100-hour inspection thereafter by Airworthiness Directive 50-28.

For Local Operators

Lightplane Sidelights

Some interesting points were brought out at the recent MIT Conference on Ground Facilities for Air Transportation. **W. E. Cullinan Jr.**, chief of the Airports Division, CAA Region 1, noted that the number of personal aircraft per 10,000 population varies from 2-14 at industrial communities and runs as high as 32 at "marketing centers."

Bill Piper of Piper Aircraft, Inc., Lock Haven, Pa., cited the rapid growth of private flying in the mid-west where "hardly a town of five to ten thousand population is without an airport" and compared the need for thousands of airports to the need for telephones. Unless a sizeable cross-section of the population is equipped with either, the utility of those in use is sharply limited.

Piper considered a turfed runway 1,500-2,000 ft. in length as satisfactory for most locations and cited a minimum cost as one of the prime factors. Taxi strips need not be over 50 ft. wide. ("If you can't stay on a 50 ft. taxi strip you should go out and practice.") When asked what he thought of the roadable plane, he remarked, "I only wish all my competitors would start building them."

Otto C. Koppen, professor of aeronautical engineering at MIT and designer of the Helioplane, urged that personal plane utility could best be accomplished by improvements in the plane which would permit it to take off and land over 50-ft. obstacles set 600 ft. apart. This would require a prepared runway strip about 200 ft. long. Stating that the greatest portion of all transportation requirements is for trips of 20 to 100 miles, Koppen said, "If you can't keep your plane within a short walking distance of your home or factory you probably shouldn't have it."

What Would You Do?

If you had some money to invest, what part of the fixed base operator business would you put it in?

Wes Marden of Waterville, Maine, phone Waterville 688, for many years a fixed base operator and active in NATA when it was formed, has accumulated some funds in the soft drink business and wants to get back into aviation. Ideas are welcome. Write or phone Wes, or let us hear from you. Warning: what you say to us might get printed.

Military Contract Training

The USAF has completed its survey of sites for the **civilian contract training** of 1,350 USAF basic flight cadets. Sites were to be announced about the middle of October and it is expected that the Air Materiel Command will complete the training specifications and have them in the mail by early November.

Legislation

Two bills important to private aviation have been introduced in Congress and, depending on the support they receive from Congressional representatives, may be acted on when Congress reconvenes November 27. The **Civilian Airman Training Act** of 1950, S. 4164 and H. R. 9727, (AMERICAN AVIATION, Oct. 2) would form the basis for another CPT program, expanded to include maintenance and other types of aviation technical training as well as flight training. And the **Air ROTC BILL,** S. 3846, (AMERICAN AVIATION, July 15) would provide for flight training of Air ROTC cadets by operators located near the 125 colleges having Air ROTC units. That could mean contracts for 125 flight school operators—and more, if the Air ROTC expands.

Thumb Thumper

Ralph Holcombe, inventor of the "buzz bonnet," which relayed instructions from flight instructor to student by means of sounds, dropped into the office the other day with the buzz bonnet's offspring. The new invention aims at the same relay of flight instructions but this time uses a ring which is attached to the airplane stick and fits around the student's thumb. It tells the student what to do by pressing in the direction the stick should be moved and giving "taps," the frequency of which tells the student how much pressure should be applied. A strap arrangement fits over the student's feet on the rudders and the instructor operates a device to apply pressure when movement of the control is desired.

An electrical circuit actuates the thumb device, which is being considered by the Navy for use in helicopter training. Ralph believes it may be the answer to surmounting the language barrier in teaching foreign students to fly.

NARCO Omnigator

The **NARCO Omnigator,** VTR-1, has been improved and designed into one easy-to-install unit. The instrument panel box combines VHF receiver and transmitter, omni converter, course selector, to-from and left-right indicators and amplifier in a unit which weighs only 7½ pounds. The

power supply is remotely located under the seat or on the fire wall. Complete installation with antenna and cables weighs only 18½ pounds. Available for 12-volt circuits, the panel box is 4¾" x 6¼" x 10¼". The set transmits on an eight-channel VHF frequency range of 121.5 to 122.9 mc.

Pilots who have watched their war-surplus marker beacon lights flash as they fly over television stations will be interested to know that the 75 mc. marker-beacon receiver in the set sends the unmistakable marker signal over the loudspeaker or earphones. Sells for $750, f.o.b., Wings Field, Ambler, Pa.

Among the Operators

Harold Lumb of Municipal Airport, Danbury, Conn., feels the Korean situation: he lost three instructors to the army in one week . . . **Maurice Taylor** of Oneonto Airport, Oneonto, N. Y. finds considerable interest in cross-country training and says his students' average age is 40 . . . **Earl Tillson** of Newburg-Walden Airport, Walden, N. Y., has opened "Tillson Aviation Country Club," an 18-hole golf course between and around his runways . . . **Ray Hopiman** of Shamokin Valley Airport, Elysburg, Pa., says charter business is going well and the number of students is increasing. A nearby airline accident last year nearly ruined his business but now it's picking up.

Robert Gilfert of Sunbury Flight School, Sunbury, Pa., says his business is improving. Pin ball machines in the lounge help keep the money rolling . . . **Morris Bowman** of Penn-Harris Airport, Harrisburg, Pa., who has been in business since 1937, says last year was the worst ever. He believes the GI program hurt the business, but says CPT was excellent.

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CAA Specification Changes

Piper PA-15 is approved for installation of six gallon auxiliary fuel tank, by Specification A-800.

Bellanca 14-19 is approved for installation of 14 gallon auxiliary fuel tank, by Specification No. 1A3.

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13" Douglas D558-1 "Skystreak"	30.00
13" Lockheed P-38 "Lightning"	30.00
20" Lockhead P2V-2 "Neptune"	40.00
16" F2H-1 "Banshee"	30.00
16" North American XFJ-1	30.00
13" Grumman XF9F-2 "Panther"	30.00
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28" Martin 2-0-2 Transport	75.00
16" Northrop P-61 "Black Widow"	50.00
17" North American B-25	40.00
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WINGS OF YESTERDAY

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The U. S. Geological Survey estimated that aerial surveys resulted in a saving of from 35 to 75% in the cost of making and revising maps as compared with the cost by ground survey, and cut the time required more than 50 percent.

•

The Savage-Branson anti-stall gear, demonstrated for the first time in the U. S. at Curtiss Field, Garden City, N. Y., was expected to make a major reduction in airplane accidents, 75% of which, according to statistics, were either caused or aided by a stall.

10 Years Ago

(In American Aviation)

Congress, on October 4, 1940, voted $40 million for the construction, improvement and repair of up to 250 airports.

•

American Export Airlines announced the purchase of TACA, Latin American airline.

•

President Roosevelt dedicated Washington National Airport on September 28, 1940.

BOOKS

AIRWAYS ABROAD, The Story of American World Air Routes, by Henry Ladd Smith. Published by The University of Wisconsin Press, 811 State Street, Madison, Wis.; 355 pp.; $4.00.

This story of the development of U. S. international commercial air policy represents a worthy companion volume for the author's *Airways* (published by Knopf in 1942) which traced the development of air transportation within the U. S. It's a very readable case history of events, interpreted with considerable awareness of the individuals and influences which shaped American aviation policy.

Of particular value is the placing in perspective of the "scramble for the air routes" between the U. S. and Great Britain in the postwar period, and the narration of how these two powers worked out their major differences in the air. Much attention is given to the roles played by the International Civil Aviation Conference at Chicago in 1944 and by the Bermuda conference in 1946 in developing postwar air policy.

In reviewing the rapid transition of air transport policy through phases of rugged individualism and government support to that of international cooperation, as achieved through ICAO and IATA, the author shows warm appreciation for the accomplishments of Pan American World Airways toward furthering U. S. aviation interests around the world. "One thing is certain," Smith says in commenting on PAA's prewar achievements, "whatever price the U. S. taxpayer paid for international air routes by means of air mail subsidy, every cent invested brought us returns that can not even be estimated in trade, defense security, and prestige. No other country in the world could boast of an airline the equal of our Pan American Airways."

Recommended reading for all those interested in world air transportation, as well as for students of history and political science.

—L. E.

LETTERS

In-Flight Refueling

To the Editor:

I'm taking this opportunity to expand the background surrounding my remarks (on lack of justification for commercial in-flight refueling in "Extra Section" of the July 15 issue) at IATA.

As stated at IATA, we have made several studies involving the use of in-flight refueling. These studies have involved current airplanes and have been expanded to include possible turbine powered aircraft of various sizes.

To date we have not found a way to justify commercial IFR on a *scheduled* basis. By this we mean a procedure whereby the operation involves dispatching the airplane on a route segment which cannot be completed without IFR.

If this (refueling) is done over the point of origination the aircraft is usually volume limited or performance limited due to weight and no great advantage is accrued through IFR unless there are take-off limitations due to field restrictions. IFR at some point en route which is the usual conception of such usage involves the maintenance of an intermediate field, the transportation of the fuel, and the maintenance of the flight crews and the IFR aircraft at some remote point. The cost of such an operation cannot be justified by the time saving or the small payload advantage IFR makes possible under these conditions.

To date the most promising scheduled use of IFR is over the destination. In this case no additional fields are required, and the IFR airplane may be kept near a terminal base which usually has adequate facilities for fuel and maintenance.

However, our studies tend to demonstrate that a very real benefit from IFR can be derived from the use of IFR as an *emergency* expedient. In this latter case an aircraft is never intentionally dispatched into an IFR operation. However, the calculated reserve is reduced to a point where it will no longer cover unusual weather or mechanical problems encountered en route.

For instance the average reserves on Stratocruisers over the North Atlantic are usually in the neighborhood of 9,000 to 12,000 pounds. From the records we have been able to obtain, the percentage of times a Stratocruiser lands with more than its calculated reserve is greater than the percentage of time it lands with less. Therefore, we believe that some lesser calculated reserve plus IFR facilities will provide as high or higher safety level than present standards.

On the Stratocruiser the use of a 5,000 pounds calculated reserve on a westbound passage would permit the airplane to nonstop a high percentage of the time with a fair payload. Under such an operation we believe that IFR does have commercial significance. But we do not have a sufficient experience within our own organization to evaluate the problem completely.

If IFR is used as an *emergency* measure, it might be made a part of the air-sea rescue service. It seems as logical to have refueling available as to provide life boats after the aircraft has fallen into the sea.

Summarizing:

1. We do not believe that IFR can be justified commercially on a scheduled basis either over the point of origination or at some point en route.

2. The most attractive method on a scheduled basis seems to be IFR in which the tanker operates out of the destination and may meet the transport at some point en route.

3. We believe that the greatest advantage from IFR may lie in a reanalysis of our reserve philosophy. In this case an aircraft is never intentionally dispatched into an IFR condition. But IFR is available to compensate for unusual condition.

4. If the philosophy in (3) is accepted, then the greatest advantages lie in the use of the jet transport. The gross weight saving involved will have a definite bearing on the basic design of the aircraft.

5. The techniques involved in IFR operations are not difficult. The formation time is low and the fuel transfer rate is extremely high.

I know that these comments go further than my little speech at IATA; however, I did bring out the possibility of emergency usage which we were studying.

K. C. GORDON
Chief Sales Engineer
Boeing Airplane Co.

(Editor's Note: Extracts from official IATA transcript of this meeting are quoted:

MR. GORDON (Boeing): We have made a number of studies of in-flight refueling. There are three ways in which it can be done: (1) By taking off light to reduce hazard; (2) by refueling en route to extend range in connection with possible adverse weather conditions; and (3) by refueling at destination if bad weather dictates that procedure, thereby making necessary smaller reserves.

CHAIRMAN: And at the latter alternative we shudder!

MR. GORDON (Boeing): Those are the three possibilities, none of which, however, have we been able to justify from an economic standpoint. It is still necessary to have additional crews, additional planes and the facilities to fly them in and out. In-flight refueling might be feasible as an emergency procedure, if the airline operators were willing to install the necessary equipment in their ships.)

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IN FLIGHT

A PAGE FOR ALL PILOTS

'Kelly One' Rests Up

Fred Kelly, the first employe hired by Western Air Lines and later chief pilot, has taken a leave of absence and has leased a service station at Jackson, Wyo., where he has gone to attempt to regain his health.

A World War I pilot, Kelly was working for a fixture company and flying in a National Guard unit in Los Angeles when on Dec. 1, 1925, **Maj. C. C. Moseley,** then vice president of operations for the newly formed Western Air Express, offered him a job as pilot. Later, he was known as "Kelly one" on Western because the carrier happened to hire another pilot named Fred Kelly and the latter was designated "Kelly two."

Kelly picked the Jackson Hole country for his recuperative sojourn because he found he felt better in the crisp, high atmosphere. He had a siege in the hospital a year ago.

Pilots' Views on Airworthiness

The International Federation of Air Line Pilots Associations has been discussing recent proposals for reviewing the airworthiness standards and as a guide has issued three main resolutions. First: it is recommended that in all future aircraft designs every endeavor should be made to keep the stalling speed within reasonable limits. The automatic feathering device in its present stage of development is not acceptable as a means to meet climb requirements.

Second: that the actual performance of an aircraft at any time, taking into account the application of the necessary parameters for varying conditions, shall never fall below that of the performance for which the aircraft was originally certificated.

Third: that the use of reverse thrust propellers is welcomed as an additional safety factor in the operation of aircraft but in its present state of development it is condemned if it is used as a means to increase takeoff and/or landing weight.

In the discussion which preceded these resolutions it was recognized that the former U. S. limitation of stalling speed to 80 mph. was unduly restrictive and it was decided that the problem could not be answered by the simple quotation of a limiting figure. It was felt also that in view of the undue number of automatic feathering failures, the performance of aircraft should be measured without the use of the auto-feathering device. On the third resolution it was agreed that if the use of reverse thrust were allowed in assessing the accelerate-stop distance and the landing run, a gap would occur in the safety margin if takeoff or landing were carried out with one engine inoperative.

The value of the U. S. airworthiness requirements (long recognized as the international standards) lies in the wide agreement not only from the pilot's standpoint but from all air transport branches. The only real danger of "rationalizing" these standards is that an excessively scientific approach can ignore some practical aspects.

—R. G. W.

Choice Assignment

E. L. Remelin, Clarence Hudson, Eddie Eshelman, George Douglass and **L. C. Brown** are the veteran captains who captured the prized runs opened up by United Air Lines' new Los Angeles-Honolulu route. Nice run, Honolulu. The weather is so uniformly good pilots seldom lose a trip and can count on a full pay envelope.

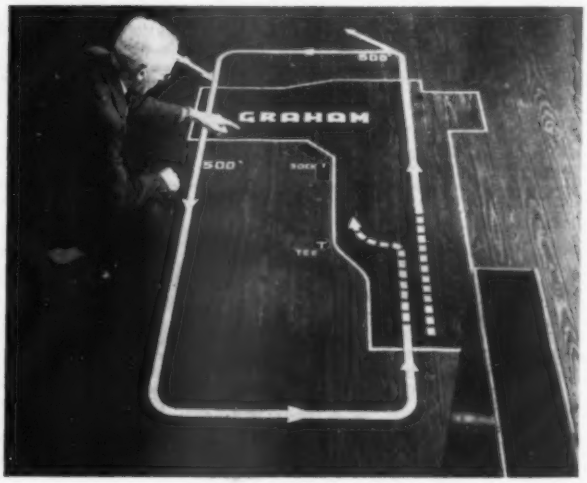
Cross-Country Commuters

For long-distance commuting give the record to Harry Van Liew and Jack Holst, United Air Lines captains based at LaGuardia Field. Temporarily assigned to the Pacific airlift, they deadhead 5,400 miles between San Francisco and the family fireside in New York between trips.

The Trace on the Ready-Room Floor

You can walk into the airport traffic pattern at Pittsburgh-Butler Airport, Pa. **K. W. Sholter,** president of Sholter Aviation Corp. has had the traffic pattern painted on the floor of the airport ready room where a pilot can't miss it on his first visit and gets an automatic refresher course every time he walks through the room.

CAA officials examined the paint job and gave it their approval. Sholter's traffic pattern is the one found



at most airports throughout the country, so after a pilot has walked into final approach from various corners of the room he is pretty well prepared for almost any airport on a cross-country flight. And where patterns do not follow the left-hand rule, CAA prescribes an L-shaped marker to inform the pilot approaching for the first time.

Licensing Former Military Pilots

*Former military pilots who apply for pilot licenses will not have to take the written examination formerly required, regardless of the length of time they have been out of the service. A new Civil Air Regulation Amendment 20-9 (*AMERICAN AVIATION, *Oct. 9) makes this provision and allows graduates of military flight schools to qualify for commercial pilot licenses without the formerly required six months' duty as rated pilots.*

To obtain a private or commercial license, pilots must present documentary proof of their service on solo flight status as a civilian or member of the armed forces, must pass an examination on CAR Parts 43 and 60, and must take a flight test if more than twelve months out of the service. To qualify for a private pilot license, pilots must have graduated from a military flight school or have served on solo flight status.

Too Much Eating. I think it all really started with those deluxe press and inaugural flights in the past few years. The airplane was the fastest means of moving from one enormous feast to another. Cream soups, rich desserts, beaucoup sauce on the steaks, six to eight courses for lunch and another big round at dinner, and drinking before, during and after.

If it wasn't a double helping of cold roast tepesquintle in Panama it was a huge serving of cantelone in Rome or a banana split at the Farmer's Market in Los Angeles or a plate of delicious pastry in Paris.

I sure like to eat good food. But up and up went the weight. I had more jowls than American has schedules out of New York. I had to bore new holes in my belts. My shirt collars were all too tight. I waddled instead of walked. The gals never looked my way any more. My friends predicted either twins or triplets.

✣ ✣ ✣

Fatty. One day a few months ago I went over to the Carlton Hotel in Washington to see **W. A. Patterson,** United's president. As I walked into his hotel room he said "Hello, fatty."

That gave me a jolt. I'd been called chubby, fatso and lots of less endearing terms, but nobody had come out bluntly like that and called me "fatty." That

night I took a good long sidewise look at myself in a full-length mirror. That also gave me a jolt. So that was it. Just plain bloated. Eating myself into a stupor. But give up spaghetti and ravioli and mashed potatoes and gravy, and ice cream pies and all those wonderful things?

Will power was of no value whatsoever. I had started a dozen diets in the past ten years and not one lasted beyond the second meal. I like to eat. I couldn't give up food by will power any more than CAB Member **Josh Lee** could give up paid speaking engagements or an airport terminal could give up pinball machines. But I had to take off that excess weight or perish (no pun) in the attempt.

✣ ✣ ✣

Miracle. It was a miracle. By mere chance **Parke Wright,** National Airlines' district manager in Washington happened to mention a painless reducing method. No diet, no will power, just take a pill before each meal and presto, off comes the weight as if by magic. I almost killed the guy in the excitement of finding out the details.

Turned out that the magician was none other than good old **Doc Ludwig Lederer,** Capital Airlines' medical officer. No time to lose. I knocked over the receptionist and a half-dozen bent,

wounded and sick employes in Capital's medical department rushing in to see Doc Lederer to find out about this magic potion, this wonderful thing that would take off weight without will power or dieting.

✣ ✣ ✣

Slim. Yep, Doc Lederer had the answer. A very simple answer. Those pills just diminish the appetite, that's all. Harmless enough, but you just don't care about eating so much. I tried them. The pounds began going off, one by one, and I'm happy to report that I've taken off the latest three sets of jowls and have had to bore a couple of holes in my belt in the inside direction. I can wear my old suits again. I walk with a spring in my step. I'm down to a slim 160 lbs.

That is to say, I was down to 160 lbs. when I wrote this. By the time you read it I will have been dining again in Rome and Paris and other points and, look Doc, you'd better get another set of pills ready. I'll be out to see you.

✣ ✣ ✣

Subways. Underground transportation has always fascinated me. I've traveled over almost every mile of **New York's** huge subway system and have had a goal of covering all the subways of all the cities of the world. The **London** Underground is a fine system with clean and comfortable cars, even smoking cars, but no express routes as there are in New York.

One of my favorite systems is the Metro in **Paris,** a well-coordinated network by which you can reach any part of the city easily and quickly. The Metro trains consist of four second-class cars and one first-class. There are few seats—almost everybody stands. I believe it is the only subway with two classes of fares.

Buenos Aires has a large subway system and at many of the stations there are large and colorful murals of tiles, usually picturing historical events. The Argentines keep their stations very clean, too, in contrast to New York's dirty stations and dirty trains.

I have yet to try out two large systems—**Tokyo** and **Moscow.** In 1947 when I was in Tokyo the subway was off limits to allied personnel. Nevertheless I made a stab at getting a ride. I went down to the train platform but gave up after taking one look at a train. It was jam-packed and stinking. I'll try again later. As for Moscow—that is one subway system I'll probably never ride on.

Berlin, Chicago, Boston and **Philadelphia** all have subways, the Berlin one being one of the largest of all. But it deteriorated during the war and part of it was inoperative for a time. **Madrid** has a good system, also, unusually large and well operated for a city of its size—at least it seemed so when I last rode on it in 1934.

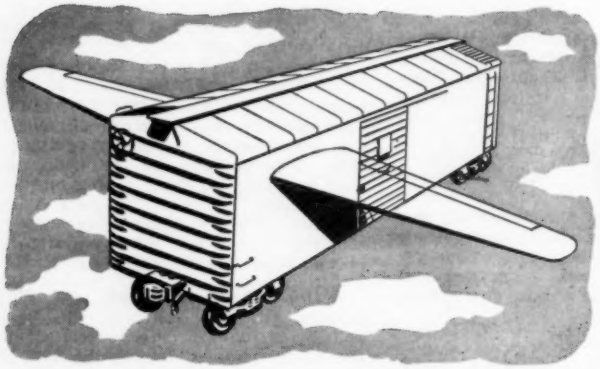
In every instance a subway becomes the simplest and cheapest means of getting places and also the least confusing. It's difficult to get lost in any subway system if you first study a map and follow the simple directions. As in aviation, you don't have to be nuts to like subways but it helps.

✣ ✣ ✣

Face the Engine. I've ridden on English trains many times, but never first class until recently. First class seats are reserved by number just as they are in U. S. Pullman cars, but when I found the right car, and then the right compartment, I found that there were two seats in the compartment with the number assigned to me. Then I discovered that the numbers of all three of the seats on one side correspond to the numbers on the seats opposite. Then I looked at my ticket more closely. At the bottom were two lines, one reading "Facing Engine," the other reading "Back to Engine." A line was drawn through the latter, so I took the seat facing the engine. It's not an illogical way of reserving seats but somewhat strange for all that.

Engineered TO ORDER!

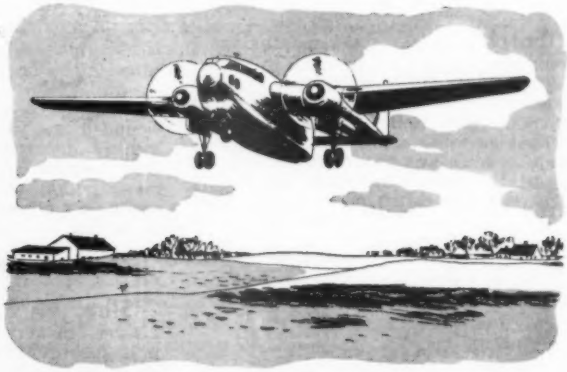
The Fairchild C-119 twin-engine cargo and troop transport was *engineered* to fill the order for a plane that can utilize small landing fields, fly long or short distances economically—carry huge loads of men, cargo and equipment under all operating conditions.



THE BOX-CAR PRINCIPLE in which maximum space is utilized was incorporated as the basis of the overall C-119 design. No tapered or circular design to lose valuable extra storage space.

REAR LOADING at truck bed height is easily accomplished by the rear center split compartment—the halves hinging outwards to allow direct loading of freight and equipment.

VERSATILE, the C-119 can be equipped either as a troop transport, litter carrier or heavy cargo aircraft. Paratroopers and equipment are easily dropped from the rear doors.



LONG- OR SHORT-DISTANCE HAULS covering a variety of military cargo ranging from "K" rations to six-ton trucks make the Packet the Air Force's most efficient transport plane.

ENGINE AND AIRPLANE CORPORATION

FAIRCHILD *Aircraft Division*

HAGERSTOWN, MARYLAND

(*Continued from opposite page* 3)

plane-miles daily. Nearly 8,000 tons of high priority cargo, including almost 34,000 passengers, have been hauled to the war theater, and about 6,800 tons, including about the same number of passengers, have been returned. MATS has more than doubled utilization of its planes with recall, training and placement of over 1,100 flight personnel in the last three months.

Colonial Contract: Air Force has awarded a $2,473,200 contract to Colonial Radio and Television Division of Sylvania Electric Products Inc., Buffalo, N. Y., for power junction boxes and radio transmitters.

AMC Contracts: Air Force's Air Materiel Command has awarded the following contracts of $100,000 or over: Wright Aeronautical Corp., Wood-Ridge, N. J., $4,942,645, spare parts for R-3350 engines; Douglas Aircraft Corp., Santa Monica, Calif., $7,000,000, $1,200,000 and $1,200,000, aircraft spare parts; B. F. Goodrich Co., Akron, O., $1,278,258, deicer shoes for aircraft; Fairchild Aircraft Div., Hagerstown, Md., $1,050,000 and $700,000, miscellaneous assemblies, sub-assemblies and spare parts; North American Aviation Inc., Los Angeles, $995,000 and $286,152, misc. assemblies, sub-assemblies, kits and spare parts; Ryan Aeronautical Co., San Diego, $165,000 and $110,000, misc. assemblies, sub-assemblies and spare parts; Cleveland Pneumatic Tool Co., Cleveland, $105,113, misc. spare parts; General Electric Co., Schenectady, N. Y., $200,000, spare parts for J-47 jet engines; U. S. Rubber Co., Mishawaka, Ind., $200,000, misc. fuel cells for C-82 and C-119; Lockheed Aircraft Corp., Burbank, $100,000, 54 mid-span, wing pylon kits; Westinghouse Electric Corp., Dayton, O., $495,917, aircraft generators; Deutsch Co., Los Angeles, $123,000, adapters; Adel Div., General Metals Corp., Huntington, W. Va., $222,000, loop type clips; Taylorcraft Inc., Conway, Pa., $169,564, shelters; Beech Aircraft Corp., Wichita, $142,730, navigators' observing domes.

AIRLINES

Airline Headache: One of the big headaches of U. S. international airlines has arisen from application of new anti-subversive act to foreign arrivals who had their visas before act went into effect. Scores of them are stranded at Ellis Island at airline expense awaiting clearance or orders to return to their native lands, also at airline expense.

Subsidy Study: Ernst & Ernst, New York firm of accountants and management consultants, has been awarded the contract by the Senate Interstate and Foreign Commerce committee for a study of airline mail pay-subsidy separation. The firm has selected Eastern, Northeast, Capital and All American for the preliminary station cost study which it hopes will reveal a pattern from which an industry separation formula can be developed.

Coach Increase Opposed: Western Air Lines is first scheduled coach operator formally to oppose increase from 4c to 4.5c in coach fares suggested by CAB. Extension of present 4c fare for San Francisco-Seattle beyond Nov. 15 was proposed by WAL in tariff filed last week. To enforce increase directive, CAB will have to suspend WAL's tariff.

Freight Rate Talks: An across-the-board increase in short-haul domestic air freight rates was delayed, at least temporarily, when CAB-industry talks last week failed for lack of general agreement. CAB suggested increase to level of rail express rates. Most transcontinental lines were in favor, but short-haul operators opposed general nature of increase.

Proposed New Rule: A proposed revision to Part 40 of the Civil Air Regulations would provide uniform standards of certification and operations rules for air carriers engaged in scheduled interstate, overseas, or foreign passenger air transportation, using multi-engined equipment. The regulations contain numerous controversial provisions, including more discretionary powers for CAA Administrator, establishment of an inspector organization separate from maintenance, possible use of flight radio operators on planes using radio-telephone instead of radio-telegraph, new flight time requirements for crew members, and new fuel reserve standards.

People: **Willis C. Baker** has been promoted from director of reservations and ticket offices to new position as general traffic manager of National Airlines . . . **M. L. Davis,** assistant to vice president-traffic and sales for Pioneer Air Lines, has been promoted to general traffic and sales manager . . .

CIVIL AERONAUTICS BOARD

Verner Named: James M. Verner, CAB examiner, is to be named administrative assistant to CAB Chairman D. W. Rentzel. Verner has served as assistant general counsel with CAB, Chicago & Southern Air Lines and Air Transport Association.

Actions

• **National Airlines, Pan American, and Panagra** were given 10 days to complete interchange and stock option agreements now included in NAL Dismemberment Case. Otherwise, case will be confined to investigation of National's routes. Missing from agreements is data on rental of aircraft to be paid by parties to proposed interchange. Motions to dismiss dismemberment phase of case were turned down.

• **Hughes Tool Company's** acquisition of further control of Trans World Airlines approved, subject to conditions attached to approval of original control in 1944. Increase in Hughes Tool's stock interest in TWA from 45 to 73% evidenced by letter agreement of Jan. 8, 1947, is consistent with public interest, CAB said.

• **Trans-Texas Airways'** proposed $26.50 round-trip Dallas-Houston fare suspended for 90 days from Oct. 1. May be discriminatory and too low, Board ruled. Normal round-trip fare is $30.30.

• **Pan American World Airways'** trans-Pacific certificates consolidated to permit more flexibility in scheduling non-stop flights. At same time, in PAA Pacific Route Amendment Case decision, CAB authorized Northwest Airlines to serve Okinawa.

• **Frontier Airlines** authorized to suspend at Kemmerer, Wyo., on Rock Springs-Salt Lake City segment pending airport improvements. Frontier must serve Vernal, Utah on all Rock Springs-Salt Lake City flights to avoid competition with United Air Lines.

• **Lavery Airways'** application for intra-Alaskan and U. S.-Alaska certificate denied. Present exemption was extended for 60 days, however, to permit Lavery to apply for Alaskan pilot-owner authorization.

• **Strato-Freight, Inc.** became 28th large irregular turned down on individual exemption request. Ruling was stayed for 30 days, however, pending possible appeal.

Mail Rates

• **Southern Airways** will get $268,000 additional mail pay for first year and a half, if CAB proposal is accepted. Increase, Board said, is to prevent further deterioration of Southern's financial condition. It would bring Southern's mail pay total for first 19 months to about $1,846,900.

Examiner's Report

• **Trans-Pacific Airlines** will be authorized to carry mail among Hawaiian Islands if CAB Examiner Thomas L. Wrenn's recommendation is adopted. TPA's present certificate authorizes carriage of passengers and cargo only.

Applications

• **Mid-Continent Airlines** applied for addition of Bartlesville,

Okla., as intermediate point between Kansas City and Tulsa. Present MCA route runs east of Bartlesville through Joplin, Mo.

• **Turner Airlines** applied for extension of feeder certificate for five years from Dec. 31, 1949. Previously, CAB instituted an investigation to determine whether extension should be for three years.

• **Trans-Texas Airways** and Public Counsel want Houston-West Coast Interchange Case deferred until final decision in Southern Service to West Case. Interchange proceeding involves Continental-TWA application which is dependent upon extension of CAL to Houston in Southern Service Case. As alternative to deferment, TTA asked consolidation of two of its pending route applications with interchange docket and broadening latter further to consider TTA in possible interchange arrangement.

• **Midet Aviation Corporation** wants authority to operate charter flights between West Palm Beach/Bahamas and Cuba until January 1, 1951.

CIVIL AVIATION

Helicopter Platform: Contract for construction of a helicopter landing platform on the roof of the Port of New York Authority Bldg. at 111 Eighth Ave., New York, has been awarded by the PNYA. The platform, first such facility in the metropolitan area, will serve as an emergency helicopter landing area as well as a base for the helicopter the Port Authority is buying. Construction will be by Terry Steel Contractors Inc., New York.

CAA Contract: CAA has awarded Hazeltine Electronics Corp., Littleneck, L. I., another contract for distance measuring equipment in addition to the original $4 million order, largest in CAA history. The two-contract total is now $5,445,000.

CAR Amendment: CAA is circulating amendment to Part 18 of Civil Air Regulations which would authorize an inspector of Canadian Department of Transport to act as CAA's authorized representative in approving major repairs made in Canada to U. S. transports.

People: **Glen A. Gilbert,** veteran in air traffic control who joined Bureau of Air Commerce in 1936, has resigned from CAA to serve as president and general manager of Glenmar Farm Products Inc. . . .

FINANCIAL

EAL Borrows $30 Million: Arrangements for a $30 million loan toward financing its $40 million new equipment program have been completed by Eastern Air Lines with a group of 27 banks, headed by Chase National Bank, New York. Funds will be used to pay for 35 Martin 404's and 14 high-density Constellations now on order. Loan agreement is based on the credit being made available over a two-year period and evidenced by revolving credit notes bearing interest at 2¼%, with commitment fee of one-quarter of 1% applying to unused balance. At the end of the two years, agreement provides for interest rate of 2½% and repayment of loan over ensuing three years in 12 equal quarterly installments.

McDonnell Net: McDonnell Aircraft Corp. reports earnings of $2,815,219 for the fiscal year ended June 30, 1950, on sales of $38,688,383, against income of $1,731,832 on sales of $32,659,384 in the previous fiscal year. The June 30 backlog was $62,695,281.

Convair Profit: Consolidated Vultee Aircraft Corp. has reported net profit of $1,069,784 for the three months ended Aug. 31 and net of $5,536,311 for the nine months ended on the same date. Sales for the nine months were $191,000,000, which included about $70,000,000 for reimbursable expenditures made and fees earned on work performed and undelivered prior to the fiscal period and not previously included in sales. Net profits for the period included about $2,200,000 applicable to such reimbursable expenditures made in prior fiscal years.

LABOR

First Long-Term Contract: The first long-term contract in the aircraft industry was signed by North American Aviation and CIO-United Auto Workers effective Oct. 23. Three-year agreement will give 11,700 production and maintenance workers general increase of 9c per hr. plus 5c for certain skilled jobs. In addition, wages will be adjusted quarterly on cost-of-living formula, with first review Jan. 23, 1951. Contract will increase annual payroll about $4 million.

Wright Strike: After rejecting a company offer of a 5c per hr. raise, more than 2,800 employes of Wright Aeronautical Corp. at Wood-Ridge, N. J., went on strike last week. Wright mechanics are represented by United Auto Workers (CIO).

Arbitration Offer: National Mediation Board has offered arbitration in a wage and work dispute between pilots and management of United Air Lines. The issues are similar to those in the current American Airlines-ALPA dispute, involving mileage limitations, etc.

Wage Increases

Lockheed Aircraft Corp.'s offer of a 10c per hr. wage boost has been accepted by more than 12,000 members of International Association of Machinists.

Trans World Airlines and International Association of Machinists have negotiated new contract through National Mediation Board. Agreement, affecting about 3,000 workers, provides 6c raise, retroactive to Jan. 1, 1950, and additional 5c raise Jan. 1, 1951. Top minimum rates, effective Jan. 1, 1951, are: lead inspectors, $2.24 per hr.; inspectors and lead mechanics, $2.14; master mechanics, $1.99; mechanics, $1.89. IAM says retroactive pay will amount to $300,000.

Hamilton Standard Division, United Aircraft Corp., has given all hourly rated employes a 14c increase, effective Oct. 2, and raised all salaried employes (amount not disclosed) effective Oct. 1.

Pratt & Whitney Aircraft Division, United Aircraft Corp., announced wage increase for all salaried employes, effective Oct. 1, beginning with minimum of $10 monthly, and increasing on sliding scale according to job classification. Hourly employes received 9c raise Oct. 2.

Arrowhead Rubber Co. strike ended when CIO United Rubber Workers accepted 11c raise plus certain other contractural agreements. The company, which manufactures aircraft components at Downey, Calif., had offered 9c cash plus 2c in benefits; union asked 38½c more in cash and benefits.

AROUND THE WORLD

SAS Discussions: Scandinavian Airlines System is having continued discussions toward integrating the three national companies (Norwegian, Danish and Swedish) more deeply into one complete overall airline for Scandinavia.

OFF THE PRESS

Student Guide for Aeronautics, introductory book for use in high school aviation classes, by Merrill E. Tower, of Los Angeles City Schools. Aero Publishers Inc., 2162 Sunset Blvd., Los Angeles, Calif. $1.75.

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AGAZINE
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a LOOK at the WEEK

Recent statements by both Air Force and Navy officials reveal increasing awareness of airlines' importance to military in an emergency. New attitude expected to result in Senate Interstate and Foreign Commerce Committee giving more weight to airlines' defense importance in subsidy study.

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Military's recognition of airlines' importance may change Defense Department's hands-off attitude toward prototype legislation. Previous Defense position was one of little interest in new commercial planes. Now, however, Navy has bought civil-certificated DC-6A's and Constellations.

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Aviation gasoline supply picture remains confused, but there's no immediate indication that airlines will have to go to higher lead content. Petroleum Defense Administration still has problem under consideration, has been able through quickie methods to step up production by 25,000 barrels daily.

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There's no trend in Washington to plan for creeping mobilization, particularly with Korean war closing. Emphasis remains on planning for total war.

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Although Economic Stabilization Agency now has an administrator (Dr. Alan Valentine), official Washington line is that wage and price controls will be imposed only as a last resort.

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To promote further developmental and production work on roadable planes, CAA has informally indicated to two manufacturers that it would rent production models of their current designs if planes were made available through distributor agencies. CAA can't buy planes in this category but could rent them for use by its agents.

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Quietly included in CAA funds is $561,150 item for build-up of air navigation facilities in Pacific.

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Not yet formalized in any mobilization plan is uniform contractual arrangement for transfer and use of airports by military in an emergency. Airports Advisory Committee will make a complete study of the matter.

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General Services Administration's new budget, now in preparation, will set up funds for payment by government for space used by Public Health, Customs and other non-airways agencies at international airports.

Delay on Commercial Orders?

Fears are mounting that airlines may shortly be faced with protracted delays in deliveries of transport planes now on order, and may also experience an acute spare parts problem. Affected may be deliveries of 161 planes worth $143,000,000: Lockheed, 42 transports; Douglas, 44, and Martin, 75.

Reason is that supplying airlines with needed planes and parts carries no defense priority at present. Hence, manufacturers of planes and components are finding that military requirements are absorbing materials needed for transports and personal aircraft.

Solution to the problem lies in Washington. Manufacturers and airlines have already conferred with National Security Resources Board and Defense Department in an effort to make sure that defense order (priority) ratings issued by National Production Authority do not take all of the available critical materials, electrical equipment, engines, propellers, etc. Civil aviation leaders contend that any system of priorities and allocations must recognize the need for a continued steady flow of materials and parts to the civil plane builder as well as the military contractor.

Shortages May Become Acute

One manufacturer of transports is already reported to have been held up by delay in aluminum deliveries. NSRB officials say that competition for aircraft engines, as between military and civil orders, could reach the acute stage soon. Summing up, it's a situation that can become serious suddenly unless something is done.

Concerning spares, scheduled delivery on many items, including engines, instruments and some 14 other minor but necessary parts, has been slowed down almost to a stop. Milton W. Arnold, vice president-operations and engineering of Air Transport Association, states that while reserve stocks would prevent an immediate emergency, failure to keep the replacement program going at a fairly normal level would soon bring about a serious situation that could result in grounding of civil aircraft.

Bright spot in the entire picture is new emphasis that military is placing on civil aviation in time of national emergency. This may ease the way for obtaining some kind of recognition from National Production Authority so that civil plane makers will not have to vie with manufacturers of television sets, refrigerators and vacuum cleaners for necessary materials.

Slick Orders All-Cargo DC-6A's

First commercial order ever placed for an all-cargo airplane was announced last week when Slick Airways purchased three DC-6A's from Douglas Aircraft Co. Cost will be about $3,000,000, with deliveries to start in February, 1951. The DC-6A is essentially the same plane as the R6D-1 ordered recently by the Navy, and the planes will add to the nation's military potential.

Thomas E. Grace, Slick president, said that since the start of operations in March, 1946, the carrier's traffic volume has increased 500% over the first-year average of 1,000,000 ton-miles monthly. The new planes, he added, will further increase by 60% the airline's present traffic potential. Slick is now operating 22 C-46's.

REFERENCE COPY

MANUFACTURERS

Lag on Components: Time lag between placing an order for aircraft components and initial shipments of the units is as much as 52 weeks, even when design is fixed and no tooling is required, Aircraft Industries Association states. Examples: aircraft engines, 52 weeks; landing gear struts, 38½ weeks; magnesium sheet, 34; superchargers and dynamotors, 30.

Price Cut on Spares: A 10% reduction on Stratocruiser spare parts, retroactive to Sept. 1, has been put into effect by Boeing Airplane Co. Reduction was made possible by concurrent quantity production of similar military equipment, Boeing said.

Amortization Certificates: W. Stuart Symington, chairman of National Security Resources Board, has been named the certifying authority with respect to issuing of certificates of amortization of new defense facilities defined in Defense Production Act. Government departments contracting with industry for new production facilities are required to submit reports and recommendations in respect to applications for necessity certificates relating to amortization of emergency facilities on five-year basis.

Convair Subcontracts: Under extensive subcontracting program, about 25% of the basic Consolidated Vultee B-36 bomber will be built by the subcontractors. Despite this program, however, employment at Convair's Ft. Worth plant now exceeds 21,000 and is still rising. Recently-appointed subcontractors: **Beech Aircraft Corp.**, Wichita (nacelles, landing gear doors, rudders, vertical fins); **Spartan Aircraft Co.**, Tulsa (engine mount extensions, turret doors and elevators); **Intercontinental Mfg. Co.**, Garland, Tex. (wing center section trailing edges); **Texlite Inc.**, Dallas (horizontal stabilizers). A number of other subcontractors, including **Bell Aircraft Corp.** have been working on the B-36 for some time.

Cessna Backlog: Cessna Aircraft Co. reported a backlog of over $25 million at the close of its fiscal year on Sept. 30, largest backlog in recent years. Biggest part of work is military, including Army Ground Forces liaison plane, assemblies for Boeing B-47 jet bomber, and empennage and aft fuselage sections of Lockheed's F-94C jet interceptor and TF-80C jet trainer. To make room for B-47 work at Wichita, Cessna will move some other work to Hutchinson, Kans. Lockheed work will be done in recently-purchased Prospect plant southwest of Wichita.

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McDonnell to Buy Plant: McDonnell Aircraft Corp. has offered city of St. Louis $5,000,000 for the plant it now leases at Lambert-St. Louis Municipal Airport. Plant was built in 1940 by Defense Plant Corp. for Curtiss-Wright at cost of about $11,000,000, and was acquired by the city after the war for $500,000. McDonnell now leases plant for $480,000 yearly.

People: **Bruce Smith** has been promoted from chief engineer of Ryan Aeronautical Co.'s airplane division to director of engineering, and **W. T. Immenschuh** has been named executive engineer . . .

PLANES & EQUIPMENT

New Navy Plane: About $39 million will be spent by Navy in next fiscal year to develop and equip a better attack aircraft. Development funds will cover engine, airframe, test and evaluation of prototype, electronics, instruments, etc.

Aero Commander: Plant facilities are being set up and tooling built by Skyway Aviation, Inc., at Two Lakes Airport, Oklahoma City, preparatory to putting the twin-engined Aero Commander transport-type executive plane into production. First plane is scheduled to come off assembly line next May, and production is being set up on basis of 200 planes a year to start. Equipment was moved from Aero Design & Engineering Corp., at Culver City, Calif., to Oklahoma City.

Pressure Sealing Zipper: B. F. Goodrich Co. has introduced a new pressure sealing zipper which facilitates replacement and repair of aircraft ailerons and tail surfaces. The zipper, now being used on Convair B-36, Boeing B-47 and Lockheed P2V, replaces the long row of screws used in conventional installations to attach a fabric sealing flap between the surfaces which it seals.

MILITARY

Plant Survey: Chicago Air Force Procurement Office is undertaking a survey of mid-west manufacturing plants in the interest of locating new available facilities should an atomic attack impair production throughout 14-state area under this office. Survey will include size of plants, number of employes, types of machinery, items now being manufactured, etc.

Appointments to ACC: Instead of having Defense Dept. represent Air Force and Navy on Air Coordinating Committee, each of these services has appointed its own member. **Dan A. Kimball,** Undersecretary of the Navy, will represent the Navy, with **John F. Floberg,** Assistant Secretary of the Navy for Air, as alternate. **John A. McCone,** Undersecretary of the Air Force, was named for the AF.

Parachute Contract: A $1,900,000 Air Force contract for cargo parachutes has been received by I. Miller & Sons, Inc., New York, war-time manufacturer of parachutes, flak suits, etc. Work will be handled at Jersey City plant.

AMC Contracts: Air Force Air Materiel Command has awarded the following contracts in excess of $100,000. **Aero Supply Mfg. Co.,** Corry, Pa., $105,000, bolts; **Mine Safety Appliances Co.,** Pittsburgh, $307,900, oxygen type masks; **Hackensack Cable Corp.,** Hackensack, N. J., $452,025, aircraft hardware; **Alar Products Inc.,** Cleveland, $196,350, repair of 7,500 government-furnished unserviceable regulators; **Bendix Radio Div.,** Bendix Aviation Corp., Towson, Md., $500,355, radio compass units; **Gates Rubber Co.,** Denver, $478,000, rubber material; **Aeroquip Corp.,** Jackson, Mich., $798,000, rubber material.

AIRLINES

C&S to Drop Coach: Rather than increase coach fare from 4c to 4.5c, as directed by CAB, Chicago and Southern Air Lines will discontinue air coach service which it started July 2 between Chicago, St. Louis, Memphis, Jackson and New Orleans. CAB ordered all coach fares increased by Nov. 15.

Another C&S Connie: A sixth L-749 Constellation has been ordered from Lockheed Aircraft Corp. by Chicago and Southern Air Lines. Two of first five have been in service since Oct. 1, a third will be delivered in early December, fourth and fifth in February, and sixth in June. The two now in service are flying Houston-Chicago and Memphis-Chicago. Next one will be put on route to Cuba, Jamaica and Venezuela.

LAA Helicopter Plans: Plans and specifications for a 16-passenger helicopter have been drawn up by Los Angeles Airways and presented to manufacturers for consideration. The craft should have gross weight of 16,000 lbs., cruising speed of 125 mph. and cost about $200,000, LAA said.

New PAA Region: Pan American World Airways has established a western Atlantic region of its Atlantic Division, which will direct operational activities in New York, Washington, Boston, Philadelphia, Canada, Bermuda and Iceland. Director is Stanley E. True, until recently executive assistant to Harold R. Harris, former vice president-general manager of American Overseas Airlines and now PAA vice president-Atlantic Division. C. S. Vaughn, PAA assistant chief pilot, has been named operations manager, and W. H. Jones, former executive assistant to AOA's vice president-sales, will be traffic and sales manager.

Two Views on Jets: **Dr. Albert Plesman,** president-director of KLM Royal Dutch Airlines, said in New York that turbo-prop aircraft probably will not enter the field of practical air travel before the end of 1954, and pure jets will not be in wide commercial use before 1956. On the other hand, **G. T. Baker,** president of National Airlines, said in Washington that jet transports "are not eight years away, but were here yesterday." Although emphasizing that no commitments have been made by NAL, he stated that company officials and its chief pilot have inspected both British and Canadian jet transports.

Sternberg Elected: Walter Sternberg, vice president-sales of National Airlines, has been elected president of Air Traffic Conference for 1951. Other officers: James W. Austin, vice president-traffic and sales of Capital Airlines, 1st vice president; Harding Lawrence, vice president-traffic of Pioneer Air Lines, 2nd vice president.

People: **Erle Cocke, Jr.,** assistant to the president of Delta Air Lines, has been elected president of the American Legion . . . **Clifford M. Ewens, Jr.,** who has been with American, TWA, Braniff and Slick, has been named sales manager of Trans-Texas Airways . . . **Thomas E. Conley, Jr.,** who has been American Airlines' passenger and cargo supervisor in Dallas, has been named operations director of American Airlines de Mexico, replacing **F. J. Hoyt,** who is on sick leave . . .

CIVIL AVIATION

First Omni Airways: First airways based on the new omnirange were put into operation by CAA last week, connecting Kansas City, Denver and Albuquerque, plus Omaha, Wichita, Tulsa, Oklahoma City, El Paso, Ft. Worth and other cities en route. Routes are about 4,380 miles long and are formed by signals of 41 omniranges. In all, 271 omniranges have been commissioned by CAA, but this is first time a chain of ranges has been designated as a controlled airway over which qualified pilots in properly-equipped planes may operate under instrument flight rules. Continental Air Lines has been authorized to operate on this basis.

Wright Trophy for Loening: Grover Loening, aeronautical engineer and now a member of the National Advisory Committee for Aeronautics' committee on aerodynamics, will be awarded the Wright Brothers Memorial Trophy for 1950 for "significant public service of enduring value to aviation in the U. S." Presentation will be at annual Wright Dinner in Washington, Dec. 16.

CIVIL AERONAUTICS BOARD

Streamlining CAB: A streamlining of CAB procedures is being prepared by the Board's general counsel. Among other things, consideration is being given to plan for cutting down lengthy oral arguments by allowing argument only on those portions of a case which CAB felt needed clarification. Streamlining is believed to be along lines desired by President Truman and newly-appointed CAB Chairman D. W. Rentzel.

Actions

• **National Airlines, Pan American, and Panagra** were given extra week to complete interchange agreements in NAL Dismemberment Case. NAL/Panagra agreement was supplemented on Oct. 16 deadline, but NAL/PAA proposal still lacks certain data on rental of aircraft.

• **Air Mail Star Route** from Mackinaw City to Mackinac Island, Mich., was certified to Postmaster General by CAB as not in conflict with development of air transportation contemplated under Civil Aeronautics Act. PO is now free to solicit bids for operation of the route.

• **New England Air Express and Golden North Airways** turned down on applications for individual exemptions to operate as large irregular carriers. New England may appeal within 30 days or lose license to continue nonscheduled operations. Golden North's letter of registration was revoked previously by CAB.

• **Air Coach Transport Association's** plan to support members in CAB revocation proceedings met a snag when Board turned down first intervention petition filed. The Association, CAB said, does not have a substantial interest which may not be represented adequately by existing parties. It may, however, file briefs as *amicus curiae*.

• **Northwest Airlines** may serve Great Falls, Mont., on flights serving Butte and/or Helena, under exemption granted by CAB. NWA is prevented from carrying local traffic between the points and limited authorization is good only until Board acts on application to make same service possible by certificate amendment.

Mail Rates

• **Wien Alaska Airlines** will get $150,000 back mail pay and approximately $100,000 more a year in the future if CAB show cause proposal is finalized. Back pay would cover period from January, 1943 through September, 1950. Future rates, to apply from Oct. 1, 1950, will raise Wien's annual mail pay to about $450,000. Board's proposal was made to avoid exhaustion of the Alaskan line's working capital.

Applications

• **Helicopter Air Service** wants mail rate increase to meet dividend obligations to holders of its Convertible Class "A" stock. Present rates will mean 12 months' profit after taxes through June, 1951, of $4,193, or about $15,007 less than dividend needs. New rates asked are $1.20 per mile for 29,500 miles or less each month, and 70¢ for excess mileage as compared to current $1.15 and 65¢ rates for 25,000 mile break. Meeting dividend obligations, HAS said, is important for future capital financing requirements.

• **Chicago and Southern Air Lines** wants to transfer Marion and Anderson-Muncie-New Castle, Ind., from its Route 8 to Turner Airlines' Route 88, and asked CAB to expand Indiana Service Case to include such transfer as possible issue. Cities have been on C&S' route since 1944, but have never been served because of inadequate airport facilities.

• **Slick Airways** requested continued authority to serve eight Air Force bases carrying military property only. Operation has been conducted since September, 1948, but present exemption will expire Nov. 10, unless CAB grants extension.

• **All American Airways** asked that Huntington, W. Va., be made a southern coterminal on proposed new Cleveland-Charleston feeder segment. New route also involves service to Akron/Canton, New Philadelphia/Dover, and Zanesville, Ohio, and Parkersburg, W. Va.

CAB Calendar

Oct. 23—Hearing resumed in Trans American Airways' Enforcement Proceeding. Washington, D. C. Examiner Barron Fredericks. (Docket 4161).

Oct. 25—Hearing in CAB investigation of Eastern Air Lines' Miami-San Juan Coach Fares. Washington, D. C. Examiner Paul N. Pfeiffer. (Docket 4505).

Oct. 25—Hearing on Trans World Airlines' application for removal of restrictions on Route 2 to permit Santa Fe-Albuquerque service. Washington, D. C. Examiner Joseph L. Fitzmaurice. (Docket 3851).

Oct. 30—Hearing in Lehman Brothers, et al. Interlocking Relationships Case. Tentative. Place and hour to be announced. (Docket 3605 et al.)

Nov. 2—Hearing before the Board on proposed amendment of Economic Regulation 291. Washington, D. C. Postponed from October 17.

FINANCIAL

AA $7 Million Profit: American Airlines' net profit for nine months ended Sept. 30 was $7,283,540, after allowance for income taxes amounting to $6,140,000. Net for same 1949 period, when carrier benefitted from tax carry-forward provisions, was $5,934,730, after tax provision of $1,320,000.

$4.7 Million for Douglas: Douglas Aircraft reported net income of $4,748,230 for nine months ended Aug. 31. No allowance was made for possible excess profits taxes. Backlog on Sept. 30 was $625,498,840, more than double the June 30 figure of $270,546,000.

Capital Net: Capital Airlines reports net income from operations after taxes of $220,221 for August against $163,411 in July. Operating profit was $347,919 against $314,000. August revenue totaled $2,768,936 against July's $2,619,819.

Profit on Atlantic: British Overseas Airways Corp. in August showed its first clear profit, $16,800 on its trans-Atlantic routes. Profit was realized on mixed sterling-dollar revenue of $1,128,400. BOAC's overall deficit in August was $1,058,400, about 50% under deficit in same month last year.

Aeroquip Dividend: Aeroquip Corp. has declared quarterly dividend of 5c per common share, payable Nov. 15 to stockholders of record Nov. 1. Company is starting new plant construction in Burbank for its wholly-owned subsidiary, Aero Coupling Corp.

LABOR

PAA-ALPA Contract: A new employment agreement covering about 1,200 pilots has been signed by Pan American World Airways and Air Line Pilots Association. Under the agreement, which runs from Nov. 1, 1950 to Dec. 31, 1951, pilots will be paid guaranteed wage plus extra compensation depending on speed and weight of aircraft. Pay rises after a basic 70 hrs. monthly instead of former 80 hrs. Co-pilot's pay will range from $300 to $700 monthly for 70 hrs. against former $275 to $625 for 80 hrs.

Other Wage Increases

American Airlines and ALPA's Air Carrier Flight Engineers Association have signed contract providing wage increases, shorter hours and improved working conditions for AA flight engineers. Contract includes $400-$465 monthly pay scale, with credit for previous experience, $100 back pay, trip bidding selection, 85 hrs. monthly maximum flight time, accumulative sick leave up to 84 days, and three weeks vacation for engineers with over 12 years' service. Union lost out in attempt to have flight engineer's station, similar to Constellation or Boeing, installed in AA's DC-6's. Contract provides that flight engineer may advance to co-pilot, but cannot revert to flight engineer after one year.

Lockheed Aircraft Corp. and International Association of Machinists have signed interim agreement providing average wage increase of 10c per hr. on the basis of a 6% across-the-board raise. No employe will receive less than 8c per hr. increase. IAM, which represents 12,000 Lockheed workers, said employes' take-home pay will be increased $2,500,000 yearly. Contract remains effective until Aug. 22, 1952, although both parties are permitted to reopen before then and IAM is not prohibited from striking to enforce wage demands.

Northrop Aircraft has granted about 8,000 employes pay increases ranging from 9c per hr. for hourly-paid factory personnel to 14c for personnel in so-called "top four labor grades." Salaried employes receive 6% increase with minimum of $15 a month.

Douglas Aircraft Co. has given 6% increase to all salaried and hourly paid employes not represented by a bargaining unit. Similar offer was rejected earlier by International Association of Machinists at Santa Monica and El Segundo.

AROUND THE WORLD

IATA Appointment: Stephane Thouvenot, deputy secretary general of civil aviation in France, has been appointed deputy director general of International Air Transport Association, according to announcement made at IATA's annual general meeting in San Francisco. He will assist Sir William Hildred, director general, and will have special responsibility for all matters concerning the work of IATA's traffic conferences.

COMING UP

Oct. 22-27—American Welding Society 31st annual meeting, Hotel Sherman, Chicago, Ill. (aircraft session, October 26).

Oct. 26-27—Tennessee aviation conference, Knoxville, Tenn.

Oct. 26-27—Airline Ground Transportation Association 4th annual meeting, Hotel Roosevelt, New Orleans, La.

Oct. 26-27—Fifth annual aviation conference, Tucson, Ariz.

Oct. 30-Nov. 1—Flight Safety Foundation annual safety seminar, Denver, Colo.

Oct. 31—Air Line Pilots Association biennial meeting, Sherman Hotel, Chicago, Ill. (Starting Date).

Nov. 1-3—National Aviation Trades Association, 11th Annual Convention, Chase Hotel, St. Louis, Mo.

International

Oct. 23—IATA Executive Committee meeting, Montreal, Quebec.

Nov. 14—ICAO Rules of the Air/Air Traffic Control Div. meeting, Montreal.